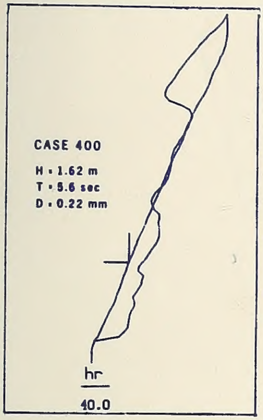
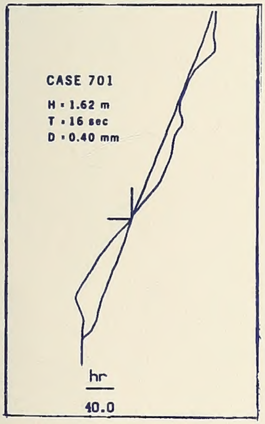
U.S. Army Coast. Eng. Res. Ctr. Tech. Rep. CERC

US Army Corps of Engineers





TECHNICAL REPORT CERC-88-6

BEACH PROFILE CHANGE MEASURED IN THE TANK FOR LARGE WAVES 1956-1957 AND 1962

by

Nicholas C. Kraus

Coastal Engineering Research Center

DEPARTMENT OF THE ARMY
Waterways Experiment Station, Corps of Engineers
PO Box 631, Vicksburg, Mississippi 39180-0631

and

Magnus Larson

Department of Water Resources Engineering
Institute of Science and Technology
University of Lund
Box 118, Lund, Sweden S-22100

DOCUMENT
LIBRARY
Woods Hole Oceanographic
Institution

June 1988

Final Report

Approved For Public Release; Distribution Unlimited

GB
450
.T45
no. CERC-
88-6

Prepared for DEPARTMENT OF THE ARMY
US Army Corps of Engineers
Washington, DC 20314-1000

Under Surf Zone Sediment Transport Processes
Work Unit 34321

Destroy this report when no longer needed. Do not return
it to the originator.

The findings in this report are not to be construed as an official
Department of the Army position unless so designated
by other authorized documents.

The contents of this report are not to be used for advertising, publication, or promotional purposes. Citation of trade names does not constitute an official endorsement or approval of the use of such commercial products.

Unclassified
SECURITY CLASSIFICATION OF THIS PAGE

REPORT DOCUMENTATION PAGE	*Form Approved* *OMB No. 0704-0188* *Exp. Date: Jun 30, 1986*

1a. REPORT SECURITY CLASSIFICATION Unclassified	1b. RESTRICTIVE MARKINGS
2a. SECURITY CLASSIFICATION AUTHORITY	3. DISTRIBUTION/AVAILABILITY OF REPORT Approved for public release; distribution unlimited.
2b. DECLASSIFICATION/DOWNGRADING SCHEDULE	
4. PERFORMING ORGANIZATION REPORT NUMBER(S) Technical Report CERC-88-6	5. MONITORING ORGANIZATION REPORT NUMBER(S)

6a. NAME OF PERFORMING ORGANIZATION USAEWES, Coastal Engineering Research Center	6b. OFFICE SYMBOL *(If applicable)*	7a. NAME OF MONITORING ORGANIZATION
6c. ADDRESS *(City, State, and ZIP Code)* PO Box 631 Vicksburg, MS 39180-0631		7b. ADDRESS *(City, State, and ZIP Code)*
8a. NAME OF FUNDING/SPONSORING ORGANIZATION US Army Corps of Engineers	8b. OFFICE SYMBOL *(If applicable)*	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER

8c. ADDRESS *(City, State, and ZIP Code)*	10. SOURCE OF FUNDING NUMBERS			
Washington DC 20314-1000	PROGRAM ELEMENT NO.	PROJECT NO.	TASK NO.	WORK UNIT ACCESSION NO. 34321

11. TITLE *(Include Security Classification)*

Beach Profile Change Measured in the Tank for Large Waves, 1956-1957 and 1962

12. PERSONAL AUTHOR(S)

Kraus, Nicholas C., Larson, Magnus

13a. TYPE OF REPORT Final report	13b. TIME COVERED FROM Jan 87 TO Dec 87	14. DATE OF REPORT *(Year, Month, Day)* June 1988	15. PAGE COUNT 168

16. SUPPLEMENTARY NOTATION

Available from National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161.

17. COSATI CODES			18. SUBJECT TERMS *(Continue on reverse if necessary and identify by block number)*
FIELD	GROUP	SUB-GROUP	Beach accretion Beach erosion Beach profile change Cross-shore sand transport Movable-bed models

19. ABSTRACT *(Continue on reverse if necessary and identify by block number)*

This report documents beach profile change, wave characteristics, and other quantities measured in two series of movable bed modeling experiments performed with the Coastal Engineering Research Center's Tank for Large Waves during 1956-1957 and 1962. These experiments used waves of height and period representative of field conditions. All major data are listed, including profile change, incident wave height and period, height and location of breaking waves, runup, water temperature, and sand grain size and fall velocity. Background information on experiment procedures and conditions is given to facilitate use of the data. Characteristic morphologic and cross-shore sand transport properties are presented to demonstrate general trends exhibited by the data and to allow comparison to other sources.

20. DISTRIBUTION/AVAILABILITY OF ABSTRACT ☒ UNCLASSIFIED/UNLIMITED ☐ SAME AS RPT. ☐ DTIC USERS	21. ABSTRACT SECURITY CLASSIFICATION Unclassified	
22a. NAME OF RESPONSIBLE INDIVIDUAL	22b. TELEPHONE *(Include Area Code)*	22c. OFFICE SYMBOL

DD FORM 1473, 84 MAR

83 APR edition may be used until exhausted.
All other editions are obsolete.

SECURITY CLASSIFICATION OF THIS PAGE
Unclassified

MBL/WHOI
0 0301 0091277 0

PREFACE

The investigation described herein was authorized as a part of the Civil Works Research and Development Program by the Office, Chief of Engineers (OCE), US Army Corps of Engineers. Work was performed under Surf Zone Sediment Transport Processes Work Unit 34321 which is part of the Shore Protection and Restoration Program at the Coastal Engineering Research Center (CERC) at the US Army Engineer Waterways Experiment Station (WES). Messrs. John H. Lockhart, Jr., and John G. Housley were OCE Technical Monitors.

The study was conducted from 1 January 1987 through 31 December 1987 by Dr. Nicholas C. Kraus, Research Physical Scientist and Principal Investigator, Surf Zone Sediment Transport Processes Work Unit 34321, Research Division (CR), CERC, in conjunction with related engineering studies by Mr. Magnus Larson of the University of Lund, Sweden. The CERC portion of the study was under general supervision of Dr. James R. Houston, Chief, CERC; Mr. Charles C. Calhoun, Jr., Assistant Chief, CERC; Dr. Charles L. Vincent, Program Manager, Shore Protection and Restoration Program, CERC; and Mr. H. Lee Butler, Chief, CR, CERC. Work performed at the University of Lund was under general supervision of Dr. Gunnar Lindh, Head, Department of Water Resources Engineering, Institute of Science and Technology.

This report benefited from reviews by and discussions with Mr. John P. Ahrens, CERC; Mr. William A. Birkemeier, CERC; Mr. Charles B. Chestnutt, OCE; Dr. Cyril Galvin, Cyril Galvin, Coastal Engineer; Ms. Kathryn J. Gingerich, CERC; Dr. Robert J. Hallermeier, Dewberry & Davis; Mr. Thorndike Saville, Jr., formerly Technical Director, CERC; Mr. William N. Seelig, Naval Facilities Engineering Command; and Mr. George W. Simmons, formerly of CERC. The experiment conducted during 1956-1957 was conceived, planned, and supervised by Mr. Saville. The 1962 experiment was conducted by the late Joseph M. Caldwell, former Technical Director, CERC, and Mr. Saville. Mr. Simmons served as leading technician in execution of both experiments. Mr. Birkemeier was responsible for the 1979 effort to digitize the data under supervision of Mr. Saville. Dr. Hallermeier and Mr. Seelig exerted extraordinary efforts to preserve the data while staff members at CERC. This report was edited by Ms. Shirley A. J. Hanshaw, Information Products Division, Information Technology Laboratory, WES.

COL Dwayne G. Lee, CE, was Commander and Director of WES during report publication. Dr. Robert W. Whalin was Technical Director.

CONTENTS

Page

PREFACE 1

LIST OF TABLES 4

LIST OF FIGURES 4

CONVERSION FACTORS, NON-SI TO SI (METRIC) UNITS OF MEASUREMENT 6

PART I: INTRODUCTION 7

- Background 7
- Scope 8

PART II: DESCRIPTION OF FACILITY AND EXPERIMENTS 10

- Large Wave Tank 10
- Experiment Procedure 13
- Recording of Data 15

PART III: SUMMARY OF THE DATA 17

- Experiment Cases 17
- Incident Wave Conditions and Water Levels 17
- Profile Morphology 20
- Breaking Wave Characteristics 20
- Variations and Exceptions 23

PART IV: REPRESENTATIVE CHARACTERISTICS OF THE DATA SET 24

- Definition of Bars and Berms 24
- Classification of Bar and Berm Profiles 25
- Bar Evolution 27
- Berm Evolution 32
- Net Cross-Shore Sand Transport Rate 34

ENDNOTES 38

REFERENCES 39

APPENDIX A: SUPPLEMENTARY DATA A1

- Breaking Wave Data.......... A1
- Runup Data A15
- Water Temperature and Fall Velocity.......... A15
- Water Level Variation for Case 911.......... A17

APPENDIX B: PLOTS OF BEACH PROFILES B1

APPENDIX C: BEACH PROFILE DATA C1

APPENDIX D: NOTATION D1

LIST OF TABLES

No. Page

1 Cases and Times of Profile Surveys ... 18
2 Wave Height, Wave Period, and Water Depth in Horizontal Section of the Tank ... 19
3 Major Morphologic Features Exhibited by the 15 Generic Cases ... 21
4 Summary of Breaking Wave Data ... 22
A1 Case 300: Breaking Wave Data ... A1
A2 Case 400: Breaking Wave Data ... A2
A3 Case 500: Breaking Wave Data ... A2
A4 Case 510: Breaking Wave Data ... A3
A5 Case 600: Breaking Wave Data ... A3
A6 Case 700: Breaking Wave Data ... A4
A7 Case 101: Breaking Wave Data ... A4
A8 Case 201: Breaking Wave Data ... A5
A9 Case 301: Breaking Wave Data ... A7
A10 Case 401: Breaking Wave Data ... A8
A11 Case 501: Breaking Wave Data ... A9
A12 Case 501: Breaking Wave Data ... A10
A13 Case 701: Breaking Wave Data ... A11
A14 Case 801: Breaking Wave Data ... A12
A15 Case 901: Breaking Wave Data ... A13
A16 Runup of Initial Waves ... A15
A17 Representative Average Monthly Water Temperatures and Sand Fall Velocities ... A16
A18 Water Temperatures Recorded During Case 300 ... A17
A19 Elapsed Time and Water Elevation Change of Case 911 ... A18

LIST OF FIGURES

No. Page

1 LWT, View toward wave generator (Fort. Belvoir) ... 11
2 LWT, View toward wave generator (Dalecarlia) ... 11
3 Wave generator in the LWT showing the bulkhead at lower left (Dalecarlia) ... 12
4 Wave generator in the LWT showing the large disks and drive-arm connector holes (Dalecarlia) ... 12
5 Definition sketch for bar and berm features ... 25
6 Criterion for distinguishing bar and berm profiles by use of the deepwater wave steepness and dimensionless fall velocity ... 26
7 Growth of bar volume through time ... 28
8 Growth of maximum bar height Z_B through time ... 29
9 Behavior of depth at bar crest h_c through time ... 30
10 Location of bar center of mass $(X_{CM})_B$ through time ... 30
11 Speed of bar center of mass $(X_{CM})_B$ through time ... 31
12 Growth of berm volume through time ... 32
13 Behavior of maximum berm height Z_b through time ... 33

LIST OF FIGURES (Continued)

No.		Page
14	Location of berm center of mass $(X_{CM})_b$ through time	34
15	Examples of total net cross-shore sand transport rate distributions, Cases 301 and 500	35
16	Time evolution of net cross-shore sand transport rate distribution for Case 400, erosional case	37
17	Time evolution of net cross-shore sand transport rate distribution for Case 201, accretionary case..................	37

CONVERSION FACTORS, NON-SI TO SI (METRIC) UNITS OF MEASUREMENT

Non-SI units of measurement used in this report can be converted to SI (metric) units as follows:

Multiply	By	To Obtain
feet	0.3048	meters
gallons	3.785	liters
inches	2.54	centimetres
short tons (mass)	907.185	kilograms

BEACH PROFILE CHANGE MEASURED IN THE TANK FOR LARGE WAVES, 1956-1957 AND 1962

PART I: INTRODUCTION

Background

1. Engineering activities in the coastal zone may alter the pattern of sediment transport and bathymetry in the vicinity of the site, and expected changes in the profile must be estimated as part of the design process. For example, quantitative prediction of changes in the beach profile induced by wave action is required for designing structures, beach fill, and berms and dunes that will serve as shore protection against storms. Accurate data are the foundation upon which a quantitative understanding of beach profile change must be built.

2. To obtain the most useful data in the laboratory, experiments should be performed at a sufficiently large scale to reproduce the physical processes that are responsible for profile change on field beaches. There are limitations to laboratory experiments, even those of prototype scale. These include potential residual scale effects, artificial wave reflection, absence of very long wave motions, artificial vertical water circulation, and seich, as well as absence of alongshore sediment movement if tanks are used. However, the capability to measure the response of the profile under controlled conditions of the laboratory and with systematic changes in sand grain size, wave characteristics, and water depth allows isolation of the underlying physical processes far more easily and much less expensively than can be done in field experiments. In this sense, complete elimination of longshore effects in tank studies may be viewed as a benefit.

3. During 1955-1983, the Beach Erosion Board (BEB) and its successor organization, the Coastal Engineering Research Center (CERC), operated a large wave tank called the "Tank for Large Waves" or the "Large Wave Tank" (LWT). Two series of movable-bed model experiments on beach profile change were conducted in the LWT. The series were mainly distinguished by the grain size of the bed material. Nine major cases, called "tests" in the original work, were run with each of two sand sizes (0.22 mm and 0.40 mm median diameter) with essentially the same water depth and "offshore" wave conditions. Cases

for a given grain size were characterized by waves of varying steepnesses, producing either accretionary or erosional profiles.

4. Only three sources of published information exist on the experiments from approximately the time period in which they were performed. In a landmark paper on scale effects in movable-bed models, Saville (1957) presents results of four cases pertaining to the 0.22-mm sand and similar experiments performed in two smaller tanks. Caldwell (1959) gives a short discussion and a table summarizing incident wave characteristics and shoreline change in selected runs of eight cases involving the 0.22-mm sand. Saville and Watts (1969) present some drawings of profiles and comparison of results for selected cases with the 0.22- and 0.40-mm sands. To date no report containing a full compilation of the data has been published on the experiment series with the 0.22-mm sand, and no detailed information has been publicly available on the second series of experiments performed using the 0.40-mm sand.

5. In recent years, tanks comparable in size to the LWT have been built in several countries. The capabilities afforded by modern instrumentation allow more efficient and accurate measurement of profile change, sediment transport, waves, and fluid flow than were possible during the experiments in the LWT. The cost of performing large movable-bed experiments is extremely high, however, and only a few such data collection programs have been reported (Kajima et al. 1983, Vellinga 1986, Dette and Uliczka 1987).

6. A wealth of data was collected in the pioneering experiments on beach profile change employing the LWT, and it is doubtful that experiments using the same wave and beach conditions will be performed again in any facility. The data thus constitute a valuable resource that should be preserved. Although three decades have passed since the experiments were performed, most of the original data is extant.

Scope

7. The purpose of this report is to fully document the experiments performed and the data obtained on beach profile change using the LWT. Measured beach profiles and wave characteristics are given for all major cases recorded in the original logbooks and other primary data sources. An effort was made to assemble background information on the characteristics of the tank and experiment conditions and procedures. This information is included to

facilitate interpretation of the results in unknown future uses of the data. Representative morphologic and transport properties are also given to demonstrate general trends exhibited by the data and to allow comparison to other sources.

8. Appendix A contains supplementary data associated with the profile change experiments: breaking wave height and location, sand fall velocity, runup, estimated water temperatures, and time-history of the water level for the case of a simulated tide. Appendix B contains plots of the measured profiles. The plots provide an overview of the sequence of profile change that occurred for each set of wave conditions and beach material. The plots were generated from the raw survey data contained in Appendix C. Unpublished documents and records of personal communications are cited in the text and collected the endnotes (preceding the references).

9. US customary (non-SI) units were used in design of the laboratory facilities and in making measurements. This system of units was maintained in this report in description of facilities and general discussion of the measurement procedure to avoid awkwardness in phraseology and to retain exact values for equipment design that would be lost in conversion to the metric system. (Conversion factors are given on page 6). Results that are likely to be used in research, such as wave heights, water levels, and volume changes, are given in metric units in the main text.

PART II: DESCRIPTION OF FACILITY AND EXPERIMENTS

Large Wave Tank

10. The LWT was originally located at the Dalecarlia Reservation in Washington, District of Columbia. Use of the tank at Dalecarlia, with a small generator installed, began in 1955. The tank began full operation in 1956 and was abandoned in 1973 when CERC moved to Fort Belvoir, Virginia. A new tank of identical specifications, in which the wave generator from the tank at Dalecarlia was used, was constructed at Fort Belvoir. The facility at Fort Belvoir became operational in 1975 and was mothballed in 1983. Information on the LWT at Dalecarlia is contained in a 1964 BEB report (Raynor and Simmons 1964), and a portion of the material in this section is excerpted from that report. Only information relevant to the movable-bed experiments is given here, so that only the Dalecarlia tank is of interest.

11. The concrete tank was 635 ft* long, 15 ft wide, and 20 ft deep and was located outdoors. A manually operated instrument carriage moved on horizontal rails along the top of both side walls of the tank. The instrument carriage carried personnel and instruments required to perform measurements. Approximately one million gallons of water were required to fill the tank to the standard operational depth of 15 ft. The tank was filled through either of two 5-in. lines leading from an 8-in. freshwater main. Water was supplied from the Dalecarlia reservoir. Filling normally required about 8 to 10 hr, and valves could be set to automatically cut off at any predetermined level to allow filling to take place during the night without loss of normal work time. Pictures of the tank are given in Figures 1 and 2.

12. The wave generator (Figures 3 and 4) consisted of a vertical bulkhead 15 ft wide and 23 ft high mounted on a carriage. The carriage moved back and forth along rails on the top of each wall of the tank; and two 42-ft 9-in.-long arms, connected to two driving disks at an adjustable eccentric, transmitted the oscillatory motion to the carriage and bulkhead. Each disk was 19 ft in diameter and weighed 14 tons. The disks were driven through a train of gears by an 510-hp constant speed electric motor. Motion of the

---

* A table of factors for converting non-SI units of measurement to SI (metric) units is presented on page 6.

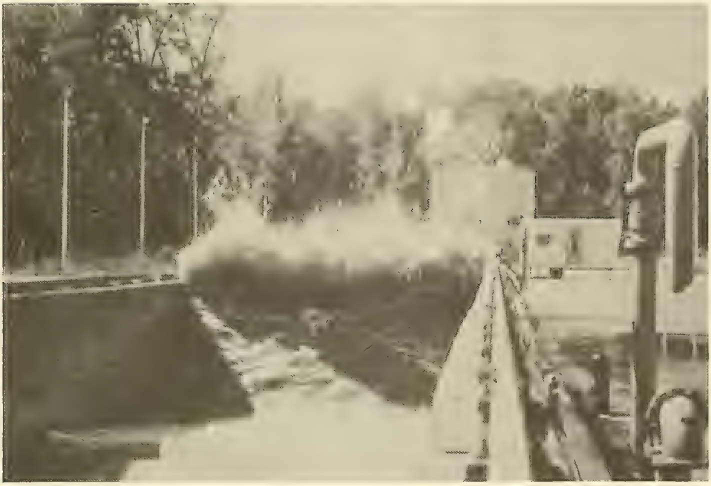


Figure 1. LWT, view toward wave generator (Fort Belvoir)

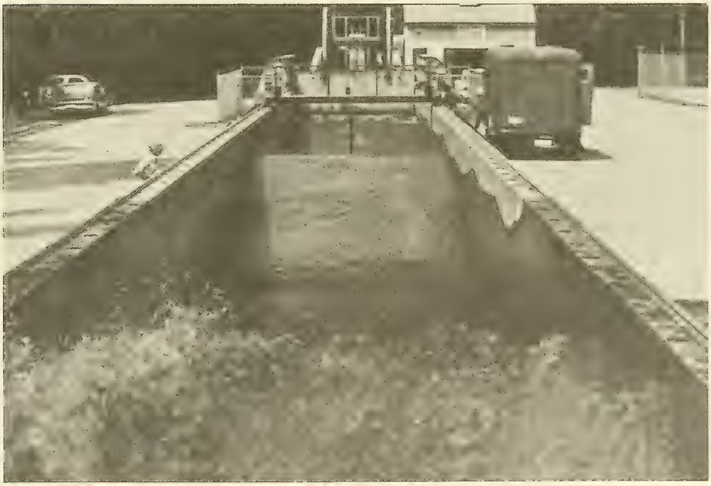


Figure 2. LWT, view toward wave generator (Dalecarlia)

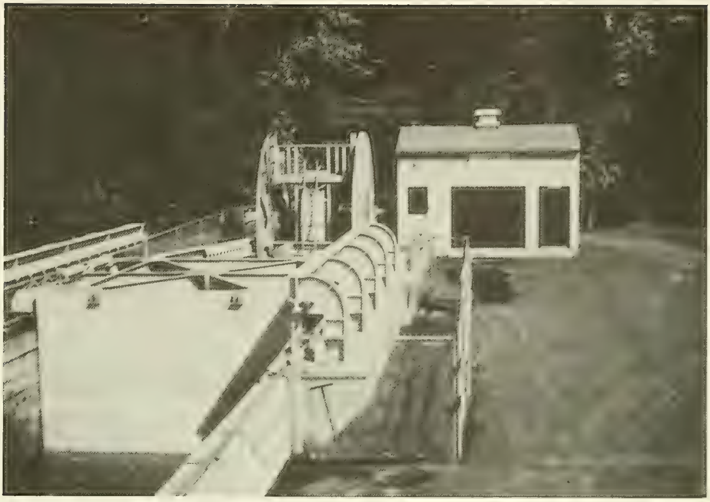


Figure 3. Wave generator in the LWT showing the bulkhead at lower left (Dalecarlia)

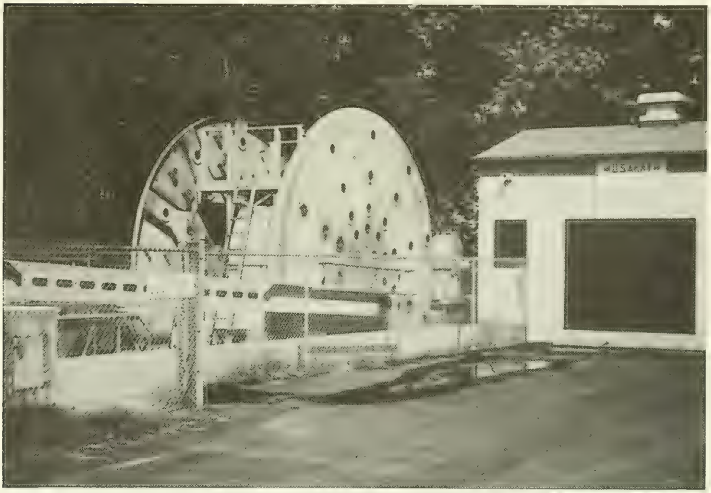


Figure 4. Wave generator in the LWT showing the large disks and drive-arm connector holes (Dalecarlia)

bulkhead was controlled by a series of gears that allowed generation of specific, discrete wave periods. Later, a variable speed 810-hp motor was installed such that, with one change of gears, a continuous range of wave periods between 2.6 and 24.8 sec could be generated. The maximum operational wave height was approximately 6 ft, although breaking wave heights up to 10 ft were recorded in the logbooks from the movable-bed experiments. Water spillage over the tank walls occasionally occurred.

Experiment Procedure

13. The general procedure followed during the movable-bed experiments performed during 1956-1957 and 1962 is described in this section.[1*]

14. Prior to the start of most new cases, sand was emplaced to form a 1 on 15 slope. About 1,700 cu yd of sand were required. A fine quartz sand of median diameter 0.22 mm was used in the experiment performed during 1956-1957, and a medium quartz sand of 0.40 mm median diameter was used in the experiment performed in 1962. Specific gravity of the sands was 2.65.

15. The initial beach slope was formed with a small bulldozer. A line was drawn on the side of the tank to direct the height of the bulldozer blade while grading the slope. No sand was allowed to remain on the bottom of the tank seaward of the toe of the beach after formation of the initial slope. The distance between the initial location of the toe of the beach and the wave generator bulkhead was approximately 315 ft for experiments with 0.22-mm sand and approximately 72 ft for experiments with 0.40-mm sand. The effective length of the tank was shortened for the experiment series utilizing 0.40-mm sand because another model had been installed at the end opposite the wave generator, and it was desired not to remove this model.

Depth surveys

16. Considerable effort was devoted to development of a profile rod that would give an accurate depth measurement and not sink into the bed. A rod with a pivoting foot produced the best results. Various sizes of feet were employed in a series of refinements of the survey rod. In making the profile surveys it was noted that the porosity of the sand bed differed slightly depending on location along the profile. Near the shoreline the sand

---

[*] Endnotes section appears at the end of the main text.

became more compact under continued wave action, whereas near the toe of the slope, the bed surface became looser. In early runs, the survey rod was attached to a pulley; this was later converted to a crank system attached to the movable instrument carriage.

17. Depth surveys were made in 4-ft increments and at prominent breaks in slope at irregular time intervals from 1 to 16 times, not including the initial profile. The resultant beach profile change under wave action proved to be highly two-dimensional. In the experiment conducted during 1956-1957, surveys were first made along three lines parallel to the axis of the tank, but no significant lateral differences were found. Because of the observed lateral uniformity, subsequent surveys were limited to the center line of the tank. In the 1962 experiment, surveys were made along three lines, although they too exhibited lateral uniformity. If sand was transported seaward of the location of the initial toe of the beach, surveys were usually extended to a point where the horizontal floor of the tank was reached. Profile elevations were recorded in 0.1-ft increments.

Wave height and period

18. Wave height was usually measured with a stepped resistance gage placed seaward of the toe of the beach. It is believed that the spacing between resistance gage elements was 2 in. in earlier work and 1 in. in later work, but the date of change between element types is not known. Accuracy of wave height measurements is limited by this spacing, both at the crest and the trough, but the errors would tend to cancel since a difference is taken to obtain the wave height. Visual estimates of wave height were also made by use of markings painted on the wall of the tank. Wave period was set through the gearing mechanism of the wave generator. The period is exact because it was produced by a constant speed motor connected to a specific gear.

Wave reflection

19. The wave generator was run continuously between depth surveys (not in the burst mode) and the amount of reflection in the tank was not quantified. Reflection in tests with structures was apparent as large nodal points along the walls of the tank (Figure 2), whereas nodal points observed in the movable-bed experiments were smaller. Based on experience with many kinds of tests performed in the tank, including tests with rubble-mound structures for which notable reflection did occur, it is believed that reflection from the beach was small, particularly for the shorter period tests (3.75 and

5.6 sec).[2,3,4] The exception occurred when the beach eroded to expose the end wall of the tank in Cases 100 and 110. In these tests, reflection was observed to increase as the scour depth increased to expose more of the end wall.

Water temperature

20. Water temperature in the tank most likely exhibited seasonal variations since it was not controlled and the tank was not sheltered. Although temperature was not measured during the experiment (except for one case), it is possible to obtain estimates of the water temperature for each of the respective cases (Appendix A).

Recording of Data

21. During the experiments, profile survey measurements, wave height, and other information were recorded in logbooks. Measured profiles were plotted soon after each run was completed to determine if the profile had achieved a near-equilibrium shape, i.e., if further changes would be small. Many of the plots were digitized in 1979 and the data placed on a nine-track magnetic tape for replotting by computer.[5]

22. It is believed that there were seven logbooks holding the data from all LWT experiments performed with the 0.22- and 0.40-mm sands. These logbooks also contained data for similar experiments concurrently performed in small tanks to investigate scale effects. However, only five logbooks were located in the course of preparing this report. In the present work, those profile surveys not on the magnetic tape but appearing in the available logbooks were entered into computer files in the same format as the data digitized in 1979. The format is described in Appendix C.

23. Through a combination of the three available data sources (logbooks, hand-drawn plots made during the course of the experiments, and the magnetic tape), almost all of the known profile surveys were recovered. Plots generated from the 1979 tape were visually compared to the original plots in order to verify and correct the data files. Thus, essentially all profile change data sets from the movable-bed experiments performed in the LWT in 1956-1957 and 1962 have been recovered, digitized, and verified.

24. A compilation of the associated wave data was made in the preparation of this report. There were three primary sources of data on the

incident waves: the logbooks, the paper of Saville (1957), and the report of Caldwell (1959). It is also known that the wave generator settings for cases with 0.40-mm sand were the same as those for 0.22-mm sand. The logbooks contained information on the breaking wave height and location measured during some runs; these quantities are tabulated in Appendix A.

25. Hallermeier (1987) gives a table listing values for many of the experimental parameters tabulated in this report (see also Collins and Chestnutt 1975, Seelig 1983). There are slight discrepancies with the values presented here. It is believed that values given in the present report represent the best available description of the data.

PART III: SUMMARY OF THE DATA

26. This chapter contains a summary of the data on beach profile change and wave conditions associated with the movable-bed model experiments performed in the LWT during 1956-1957 and 1962. This chapter is intended to provide sufficient background information to allow analysis of the raw profile data contained in Appendix C.

Experiment Cases

27. Profile survey data are available for nine major cases in the two experiment series performed with 0.22- and 0.40-mm sand (Table 1). A "Case" is defined as a collection of sequential profiles for a beach subjected to incident waves of specified height and period. Wave properties pertain to the horizontal section of the tank. Except for two cases (510 and 610), the initial beach profile was an approximately 1 on 15 uniform slope. Table 1 gives the case numbers and elapsed times at which the profile was measured. Total wave action typically ranged between 30 and 100 hr, and the times of the surveys are given in decimal form.

28. The numbering system for the cases is a modification of that established by Birkemeier.[6] Each case is identified by a three-digit number. The first digit gives the ordinal number of the case and identifies the incident wave conditions. Cases with the same first digit correspond to the same incident wave conditions. The second digit, if different from zero, identifies a variation performed in connection with the generic case with the same first digit and zero as the second digit. The third digit identifies the grain size used: 0 corresponds to 0.22-mm sand, and 1 corresponds to 0.40-mm sand.

Incident Wave Conditions and Water Levels

29. Wave conditions and water levels are listed in Table 2. During Case 700, the water level was decreased between profiles taken at elapsed times of 5 hr and 10 hr, probably to eliminate water loss at the sides of the tank. The water level was held at 3.81 m thereafter. Wave data appear in the logbooks in connection with a small-scale model experiment to be associated with Case 601. However, no record of Case 601 exists, and it is believed

Table 1

Cases and Times of Profile Surveys

Case No.	Number of Profiles	Time of Profile Survey hr
		0.22-mm Sand
100	7	0, 1, 5, 12, 19, 25.5, 30
110	8	0, 1, 3, 5, 12, 19.75, 25.5, 30
200	13	0, 2, 4, 6, 8, 9, 14.5, 19.5, 23.5, 28.5, 34.5, 40, 46
300	10	0, 1, 3, 5, 10, 15, 20, 30, 40, 50
400	9	0, 1, 3, 5, 10, 15, 20, 30, 40
500	15	0, 1, 3, 5, 10, 15, 20, 30, 40, 50, 60, 70, 80, 90, 100
510	17	0, 1, 3, 5, 10, 15, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120
600	10	0, 1, 3, 5, 10, 15, 20, 30, 40, 60
610	2	0, 0.75
700	15	0, 1, 3, 5, 10, 15, 20, 30, 40, 50 60, 70, 80, 90, 100
		0.40-mm Sand
101	11	0, 1, 3, 5, 10, 12, 15, 19, 20, 25.5, 30
201	10	0, 1, 2, 3, 5, 10, 15, 20, 30, 40
301	10	0, 1, 3, 5, 10, 15, 20, 30, 40, 50
401	12	0, 1, 3, 5, 10, 15, 20, 30, 40, 50 60, 66
501	11	0, 1, 3, 5, 10, 15, 20, 30, 40, 50, 60
701	15	0, 1, 1.42, 3, 4.25, 5, 7.07, 10 12.73, 15, 20, 27.58, 30, 33.23, 40
801	10	0, 1, 3, 5, 10, 15, 20, 30, 40, 50
901	13	0, 1, 3.1, 6.2, 9.3, 12.4, 15.5, 23.8, 31, 34.1, 37.57, 40.3, 49.6
911	12	0, 1, 3.1, 6.2, 9.3, 12.4, 15.5, 24.8, 31, 34.1, 37.2, 40.3

Table 2

Wave Height, Wave Period, and Water Depth in Horizontal Section of the Tank

Case No.	Wave Height m	Wave Period sec	Water Depth m	Deepwater Wave Steepness
		0.22-mm Sand		
100	1.28	11.33	4.57	0.0054
110	1.28	11.33	4.57	0.0054
200	0.55	11.33	4.57	0.0023
300	1.68	11.33	4.27	0.0070
400	1.62	5.6	4.42	0.0351
500	1.52	3.75	4.57	0.0750
510	0.61	16.0	4.57	0.0011
600	0.61	16.0	4.57	0.0011
610	1.83	16.0	4.57	0.0033
700	1.62	16.0	4.11 (3.81)*	0.0028
		0.40-mm Sand		
101	1.28	11.33	4.57	0.0054
201	0.55	11.33	4.57	0.0023
301	1.68	11.33	4.27	0.0070
401	1.62	5.6	4.42	0.0351
501	1.52	3.75	4.57	0.0750
601	0.61	16.0	4.57	0.0011
701	1.62	16.0	3.81	0.0028
801	0.76	3.75	4.57	0.0377
901	1.34	7.87	3.96	0.0129
911	1.34	7.87	3.96**	0.0129

---

* Water level decreased between 5 hr and 10 hr.
** Mean of varying depth between 3.5 m and 4.4 m.

that this case was never performed in the LWT because profile change in Case 600 was highly accretionary, and main interest of the 1962 experiment was in erosion. For Case 911, a tidal cycle with a period of approximately 12 hr was simulated; the water depth ranged between 3.5 and 4.4 m, giving an average depth of 3.96 m, equal to that used in Case 901.

30. The deepwater wave steepness values listed in Table 2 were calculated as the ratio of deepwater wave height and deepwater wavelength $(gT^2/2\pi)$*, where g is acceleration of gravity and T is wave period. The deepwater wave height was obtained by conversion of the wave height measured in the uniform-depth section according to linear wave theory. Deepwater wave steepnesses vary by a factor of about 70.

Profile Morphology

31. The profile was surveyed frequently during the initial stage of each case to record the rapid change that occurred. The time interval between profile surveys was determined through judgment of the rate of profile change and the approach to equilibrium. The judgment was made by plotting profiles soon after measurement and comparing relative changes. Therefore, intervals between profile surveys differ for individual cases. The approach to equilibrium is quantitatively examined in Part IV.

32. General characteristics of the final (near-equilibrium) profile reached for each of the 15 generic cases are listed in Table 3. These and the developing profiles are displayed in Appendix B. Here, an erosional profile is defined as a profile exhibiting a notable bar, and an accretionary profile is defined as a profile exhibiting a notable berm. Of the 15 generic cases, eight terminated with erosional profiles (Cases 100, 300, 400, 500, 700, 401, 501, and 901) and seven terminated with accretionary profiles (Cases 200, 600, 101, 201, 301, 701, and 801), although little net change occurred in Case 801.

Breaking Wave Characteristics

33. A summary of available information on the breaking waves is listed in Table 4. The location of the break point is calculated as the distance

---

* For convenience, symbols and abbreviations are listed in the Notation, Appendix D.

Table 3

Major Morphologic Features Exhibited by the 15 Generic Cases

Case No.	Morphologic Characteristics of Final Profile
	0.22-mm Sand
100	Bar, inshore step
200	Berm, step, double bar; bars join together
300	Inshore step, bar trough, double bar; bars join together
400	Inshore step, bar trough, bar
500	Inshore step, bar trough, separated bars
600	Berm, inshore step
700	Inshore step, double bar; bars join together
	0.40-mm Sand
101	Berm, short inshore step, bar
201	Berm
301	Berm, bar trough, bar
401	Bar
501	Inshore step, bar
701	Berm
801	Berm, small bar
901	Berm, inshore step, double bar; bars join together

Table 4

Summary of Breaking Wave Data

Case No.	No. of Values	Average Breaking Wave Height m	Most-Landward Location m	Most-Seaward Location m
		0.22-mm Sand		
100	NA	1.7	NA	NA
110	NA	1.7	NA	NA
200	NA	1.1	NA	NA
300	10	2.0	33	42
400	10	2.3	NA	NA
500	12	1.9	30	63
510	8	1.0	16	25
600	8	1.1	14	16
610	NA	NA	NA	NA
700	11	2.1	32	50
		0.40-mm Sand		
101	41	1.8	23	29
201	49	1.9	20	23
301	30	2.4	28	34
401	48	2.4	28	42
501	47	1.6	36	48
701	40	2.0	27	34
801	45	0.8	11	15
901	54	2.0	29	42
911	NA	NA	NA	NA

Note: Notation NA indicates data not available. Horizontal distances referenced from initial still-water shoreline.

from the initial position of the still-water shoreline. The breaking wave height and location of the break point as a function of elapsed time are given in Appendix A.

34. In Case 500 the breaking wave height was twice measured at a secondary breaking position in the surf zone. The average height of the secondary

breaker was 1.1 m, and it was located 15-20 m from the position of the initial still-water shoreline (Table A3). Similarly, in Case 501, the breaking wave height was measured 17 times at a secondary breaking position. The average secondary breaking wave height was 0.8 m, and the breaker was located 5-8 m from the initial still-water shoreline (Table A12).

Variations and Exceptions

35. Information on case variations and exceptions is collected in this section. The initial profile (0 hr) for Case 510 was essentially the same as the final profile (100 hr) from Case 500. In going from Case 500 to Case 510, wave height and period were changed from 1.52 m and 3.75 sec to 0.61 m and 16.0 sec, with the water depth held the same in order to determine if the after-storm recovery process observed in the field would occur. The eroded profile produced by steep waves in Case 500 underwent partial recovery under the low steepness waves of Case 510.

36. The initial profile (0 hr) for Case 610 was essentially the same as the final profile (60 hr) for Case 600. In going from Case 600 to Case 610, wave height was increased from 0.61 m to 1.83 m, while holding the wave period and water level fixed, to determine if the accretionary profile would erode under higher waves. This increase in wave height tripled the value of the wave steepness and produced erosion of the near-equilibrium profile established in Case 600.

37. Wave height and period were the same for Cases 901 and 911, but the water level in Case 911 was cyclically varied in a stepwise fashion with an approximate 12-hr period to simulate a tide (Table A19). The objective of this case was to determine if the varying water level would smooth the profile as compared to a fixed level. This effect was observed. Water level ranged between 3.5 and 4.4 m to give the mean still-water level of 3.96 m used in Case 901.

38. The same wave conditions were used in Cases 110 and 100 to verify reproducibility of the generated profile change; good agreement was found. In both cases, the profile eroded to the end of the tank and reflection increased.

PART IV: REPRESENTATIVE CHARACTERISTICS OF THE DATA SET

39. This chapter notes general trends and representative characteristics of the data set on profile change obtained with the LWT. Emphasis is placed on time evolution of selected properties of bars and berms.

40. First, the procedure used to define morphologic features of bars and berms is described. Secondly, profile types are classified as being either bar or berm, and a criterion for distinguishing these limiting profile shapes is developed in terms of the deepwater wave steepness and a dimensionless sand grain fall velocity parameter. Such a criterion can be used directly as a predictor of beach erosion and accretion. Examples of the time evolution of selected bar and berm features are also given. The chapter concludes with a discussion of the net cross-shore sand transport rate along the profile and the associated transport rate distributions.

41. For the analysis, each profile was expressed in a cubic spline representation, resulting in approximately 75 polynomials per profile. This representation facilitated numerical evaluations and gave a continuous mathematical description of the profile. Only those cases involving plane initial beach slopes (all cases except Cases 510 and 610) were used to allow direct interpretation and intercomparison of results.

42. Numerical values are expressed in metric units. It is emphasized that the original profile survey data listed in Appendix C are given in US customary units, i.e., distances are expressed in feet.

Definition of Bars and Berms

43. In a qualitative sense, bars and berms are readily identifiable features associated with local regions of deposition along the beach profile. Figure 5 is a definition sketch for the nomenclature associated with bars and berms that is employed in this chapter.

44. No commonly accepted procedure exists for defining bars and berms in a quantitative manner. For the purpose of making calculations, bars and berms and their associated properties were defined with respect to the initial profile. This procedure provided an unambiguous interpretation of quantities such as bar/berm volume and height and gave results compatible with the intuitive picture of bars and berms as depositional features.

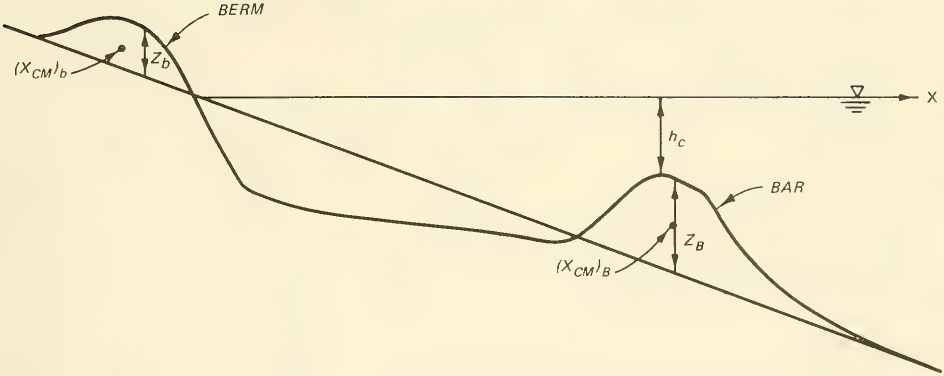


Figure 5. Definition sketch for bar and berm features

45. In the various cases, a bar formed if material was deposited in the offshore region of the profile (main direction of sand transport offshore), whereas a berm formed if material was deposited on the foreshore (main direction of sand transport onshore). A more thorough discussion of beach profile morphology and its relation to the controlling wave and sediment parameters is given by Larson and Kraus (1988a). They used data presented in this report together with data from an independent experiment performed at the Central Research Institute for Electric Power Industry (CRIEPI) involving another large wave tank (Kajima et al. 1983).

Classification of Bar and Berm Profiles

46. The response of the beach profile to the waves incident upon it may be classified according to whether material is mainly transported offshore to create a bar or transported onshore to create a berm. In the process of bar formation, the foreshore erodes and the shoreline typically retreats, whereas in berm formation the foreshore accretes and the shoreline advances.

47. Criteria have been previously proposed to classify beach profile response as bar-type (erosional) or berm-type (accretionary). Here, a new classification scheme is presented which is based solely on data obtained from profile change generated in the LWT and in the more recent CRIEPI experiments performed in Japan (Kajima et al. 1983). The agreement in trends of the data obtained with the LWT and the CRIEPI experiments performed with modern

instrumentation lends credibility to the data set obtained with the LWT. In this report data obtained with the LWT will be identified by the notation "CE," signifying the US Army Corps of Engineers.

48. Figure 6 displays the response of the beach profile type classified as bar or berm in the various cases as a function of the deepwater wave steepness H_o/L_o and a dimensionless sand fall velocity parameter H_o/wT in which

H_o = deepwater wave height, m
L_o = deepwater wavelength, m
w = sand fall velocity, m/sec
T = wave period, sec

Beach profile types were visually classified as either bar or berm according to the dominant tendency appearing in the plots (Appendix B). For example, if a small breakpoint bar was present on a profile which showed a strong berm buildup (onshore sand transport) during most of the run, the profile type was

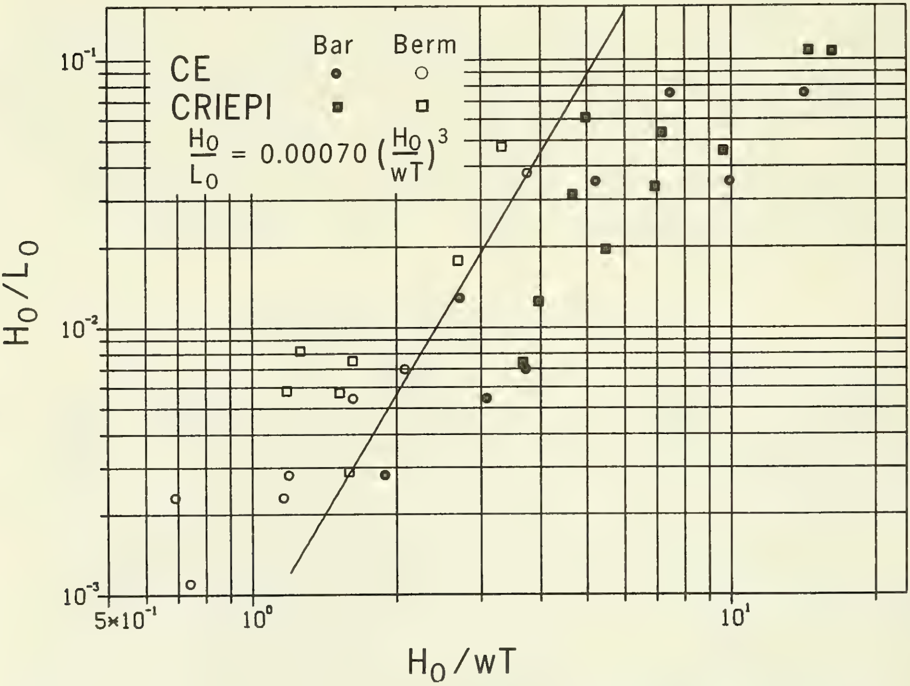


Figure 6. Criterion for distinguishing bar and berm profiles by use of the deepwater wave steepness and dimensionless fall velocity

designated as berm. The solid line in Figure 6, drawn so as to separate regions corresponding to bar and berm profiles, is described by the following equation:

$$\frac{H_o}{L_o} = 0.00070 \left(\frac{H_o}{wT} \right)^3 \qquad (1)$$

Larson and Kraus (1988a) investigate several other previously proposed criteria for predicting profile response as a function of wave and sand characteristics. Kohler and Galvin[7] had previously used the fall velocity parameter in an attempt to develop a bar/berm predictive criterion for the CE data set.

Bar Evolution

49. Various geometric properties pertaining to bar features were calculated. These properties showed similar development in time, namely an initially rapid response followed by a decrease in the rate of response with approach to an equilibrium value. In the data set, 13 cases exhibited some degree of bar formation, although only eight cases were classified as bar profiles. The remaining five cases were characterized by accretion on the foreshore, i.e., berm buildup.

Bar volume

50. Evolution of bar volume through time is illustrated in Figure 7 for the 13 cases judged to exhibit a main breakpoint bar. Bars that developed on profiles which predominantly accreted on the foreshore (onshore sand transport) had smaller volumes than bars formed on profiles where offshore transport predominantly occurred. Also, equilibrium bar volume on berm profiles was reached much faster than on bar profiles, in most cases by the first profile survey. Examples of such rapid bar buildup are Cases 101, 301, and 801. Larson and Kraus (1988a) discuss the time evolution of bar volume and relate it to incident wave parameters and sand characteristics.

51. Note in Figure 7 that bar volume evolution is similar for Case 901 and the corresponding case with water level variation (Case 911). In some cases, if a second bar formed shoreward of the main breakpoint bar, the two bars tended to grow together, appearing to hinder development of the main breakpoint bar. Examples are Cases 300 and 700.

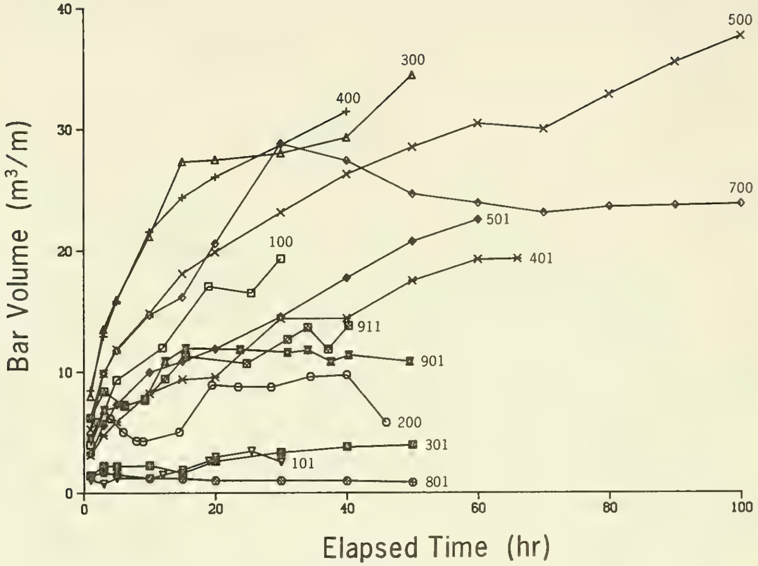


Figure 7. Growth of bar volume through time

Maximum bar height

52. Maximum bar height Z_B on a given profile was defined as the maximum difference in elevation within the domain of the bar between the profile and the initial profile (see Figure 5). The location of Z_B along the profile did not necessarily coincide with the location of the bar crest, the point on the bar where water depth is a minimum; however, Z_B was always close in value to the bar crest height. Figure 8 illustrates the growth of Z_B with elapsed time for the 13 cases. The time evolution of maximum bar height was similar to evolution of bar volume. However, equilibrium was achieved more rapidly for maximum bar height since most of the curves in Figure 8 are relatively horizontal toward the end of the run.

53. Comparison between Cases 901 and 911 shows the influence of water level variation on maximum bar height. In Case 911 (variable water level), the trend of the maximum bar height is to increase with time toward an equilibrium value but with a superimposed fluctuation that is approximately in phase with the water level variation. The corresponding Case 901, with a fixed water level, shows a regular development of maximum bar height toward an equilibrium value of approximately 1 m.

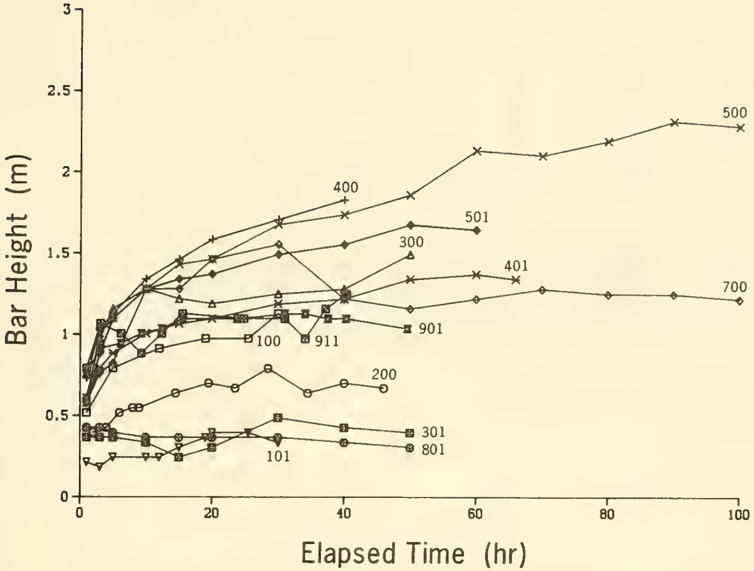


Figure 8. Growth of maximum bar height Z_B through time

Depth at the bar crest

54. Depth at the bar crest h_c was almost constant throughout a run, as seen in Figure 9. In some cases, h_c underwent an abrupt change (for example, Case 200), caused by a second bar located inshore that grew and merged with the main breakpoint bar. Thus, although main breakpoint bars moved considerably offshore, they simultaneously grew in size, with the result that the depth at the bar crest remained unchanged. Even the test with a varying water level (Case 911) showed an approximately constant depth over the bar crest during the course of the run, indicating that there was little time lag between the change in water level and response of the profile. In Figure 9, h_c appears to vary for Case 911 because of the use of a fixed origin that was located at the initial still-water shoreline.

Bar location and movement

55. For cases that exhibited significant erosion, the main breakpoint bar usually translated offshore with time. As a convenient measure of the location of the main breakpoint bar, the position of the bar center of mass with respect to the initial still-water shoreline was calculated. Figure 10 displays the horizontal location of the bar center of mass as a function of

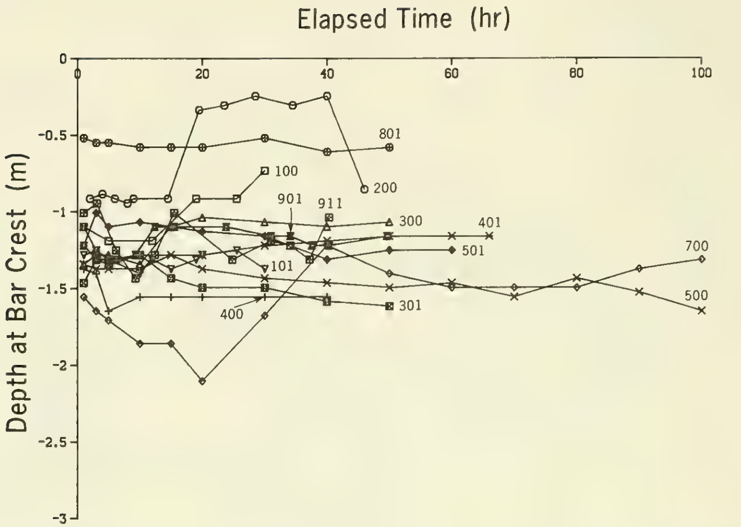


Figure 9. Behavior of depth at bar crest h_c through time

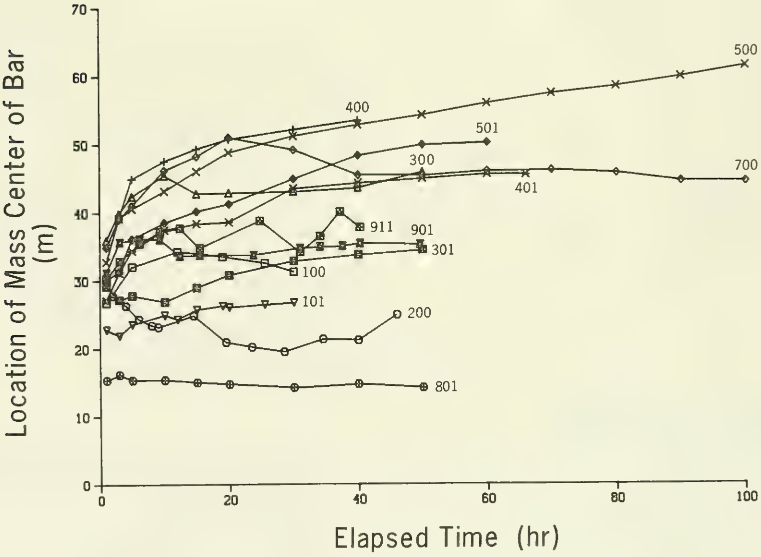


Figure 10. Location of bar center of mass $(X_{CM})_B$ through time

time. The greatest movement occurred for cases with the finer grain size (0.22 mm) and larger values of deepwater wave steepness (Cases 400 and 500). Breakpoint bars that developed on accretionary profiles were almost stationary (Cases 101 and 801).

56. The speed of bar migration calculated from movement of the bar center of mass is plotted as a function of time in Figure 11 for those cases having significant offshore bar movement. In the beginning of a run the response of the profile was rapid, marked by high speeds of bar migration (on the order of 1-3 m/hr); however, bar migration speed decreased considerably after about 10 hr. In Case 911, the bar cyclically moved onshore and offshore with increase and decrease in water level. Case 100 showed onshore movement, probably because the profile eroded back to the end of the tank; exposure of the wall gave rise to reflection of the incident waves and scour, changing the wave conditions and shape of the bar.

57. For calculation of the speed of bar migration, the main breakpoint bar was considered. If a second bar formed inshore and joined with the main breakpoint bar, only the estimated original seaward most part was used.

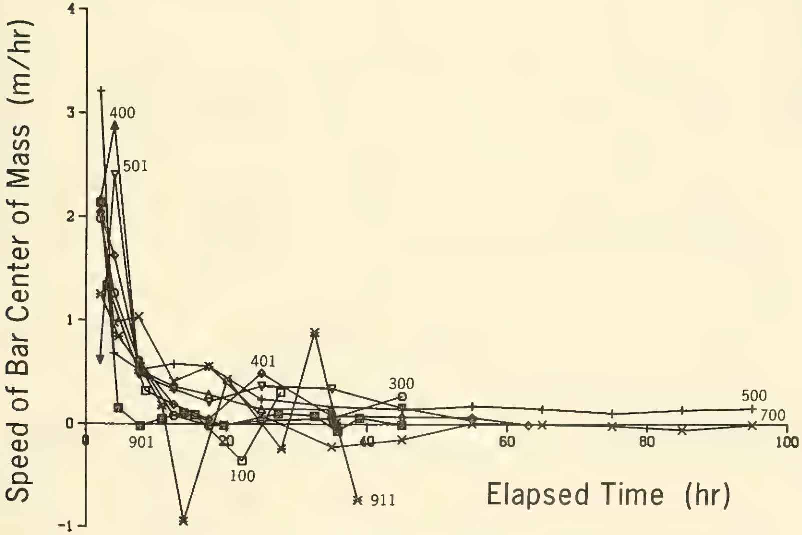


Figure 11. Speed of bar center of mass $(X_{CM})_B$ through time

Volume

58. Six cases showed considerable berm buildup, fewer than the eight cases in which breakpoint bars formed (although Case 801 was classified as accretionary, little net change occurred; therefore this case was not included in Figure 12). The same types of calculations performed for breakpoint bars were conducted to determine berm properties. Figure 12 illustrates growth of berm volume with time for the six cases. Cases 200 and 600, exhibiting relatively small berm buildup, rapidly reached equilibrium berm volume. Berm volume was defined with respect to the initial profile in a manner analogous to breakpoint bar volume.

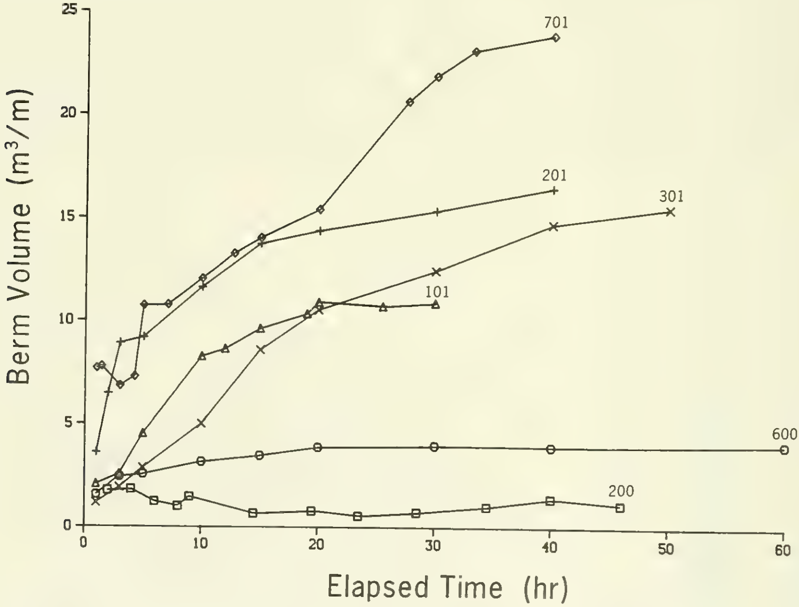


Figure 12. Growth of berm volume through time

Height

59. The time evolution of maximum berm height Z_b above the initial profile is displayed in Figure 13. Case 701 initially showed a decrease in maximum berm height, with a minimum occurring at the elapsed time of 5 hr. In this case a large berm rapidly formed and exhibited steep shoreward and

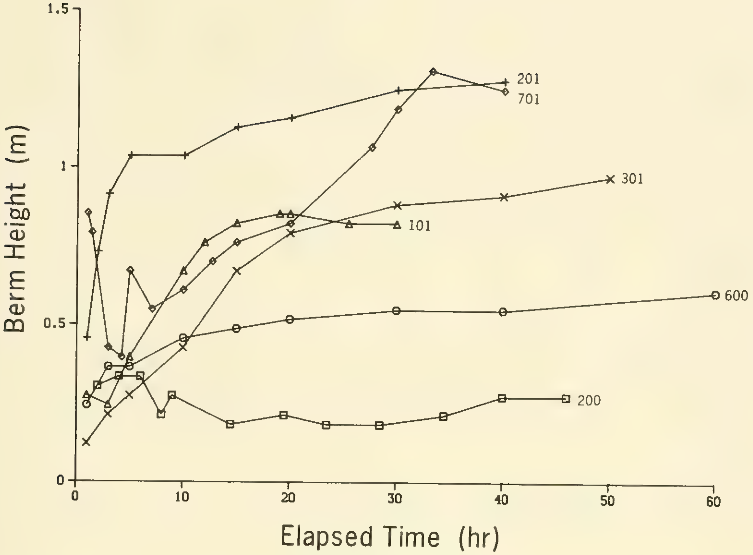


Figure 13. Behavior of maximum berm height Z_b through time

seaward slopes at the first profile survey. However, at succeeding profile surveys, the face slope on the berm became more gentle, and the foreshore accreted over a greater horizontal extent. Data recorded in the logbooks indicate that the breaking wave height varied appreciably during the earlier part of the run, with higher waves in the first few hours followed by smaller waves before the wave height became stable (cf. Appendix A, Case 701). The reason for this variation in wave height is not known.

Location

60. The horizontal location of the berm center of mass was relatively constant with time, with only some cases showing slight berm movement during the initial phase of the run (Figure 14). In Case 701, the change in shape of the berm due to changing wave conditions caused the berm center of mass to move rapidly during the first 5 hr. In Cases 101 and 301, there was a small seaward translation of the berm center of mass during the first 10 hr.

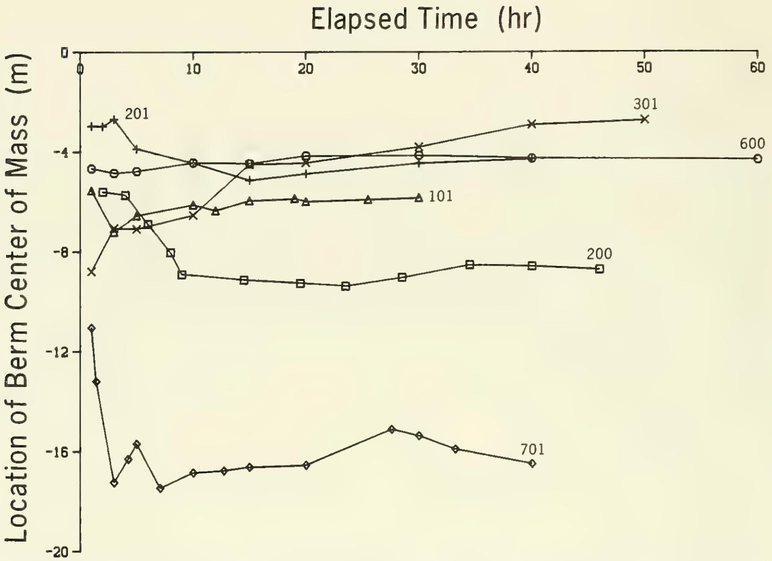


Figure 14. Location of berm center of mass $(X_{CM})_b$ through time

Net Cross-Shore Sand Transport Rate

61. Integration of the equation of sand conservation along the profile between two surveys yields the net cross-shore transport rate that occurred between them:

$$q(x) = \int_{x_o}^{x} \frac{h_2(x) - h_1(x)}{t_2 - t_1}\, dx \tag{2}$$

in which

$q(x)$ = cross-shore sand transport rate, $m^3/m/sec$
x = horizontal coordinate with origin at the initial still-water shoreline, m
x_o = location at which no profile change occurred, m
$h_2(x)$ = depth along the profile at time t_2, m
$h_1(x)$ = depth along the profile at time t_1, m
t_2 = time of later profile survey, sec
t_1 = time of earlier profile survey, sec

In arriving at Equation 2, it was assumed that sand porosity was constant across the profile.

62. By using the initial and final profiles from each case, the total net cross-shore sand transport rate can be obtained, which in a gross sense illustrates how material was redistributed over the profile in the approach to an equilibrium shape. Larson and Kraus (1988b) classified such distributions of the net cross-shore transport rate derived from experiments performed with large wave tanks, and three principal shapes were identified. Most of the cases listed in Table 2 had unipeaked distributions and exhibited either offshore-directed or onshore-directed sand transport along the active profile. Only a few cases exhibited multiple peaks of opposite sign, and one peak was always dominant, except for Case 801 which had two peaks of about the same magnitude. In Case 801 the initial profile was almost stable under the incident waves, and little net transport took place.

63. Figure 15 shows two typical distributions of the total net cross-shore transport rate calculated from initial and final profile surveys, one illustrating bar formation (Case 500) and the other berm buildup (Case 301). Offshore-directed sand transport is positive, since the origin of the coordinate system is located at the initial still-water shoreline and the horizontal axis points positive offshore.

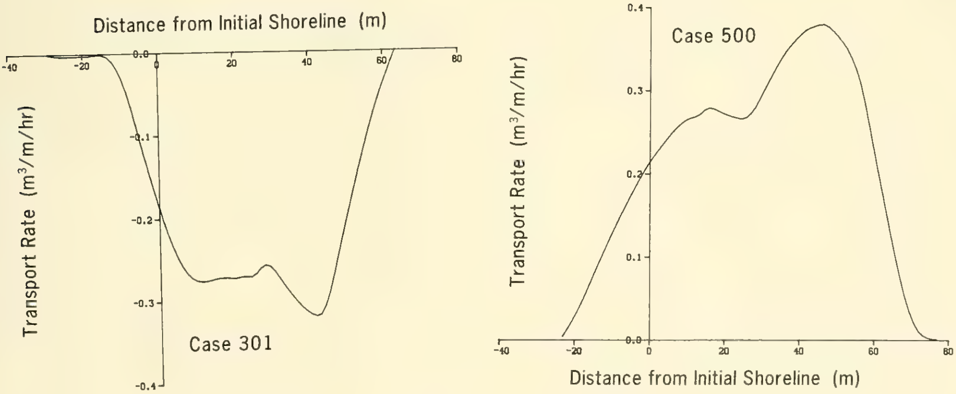


Figure 15. Examples of total net cross-shore sand transport rate distributions, Cases 301 and 500

64. The time evolution of the net cross-shore sand transport rate was obtained by integrating the sand conservation equation between consecutive profile surveys. Figures 16 and 17 illustrate typical features of the time evolution of the transport rate distribution for an erosional profile (Case 400) and an accretionary profile (Case 201). These distributions, arising from shorter time intervals, exhibit more complex patterns than distributions calculated from initial and final profiles, for which the relative effect of transient transport processes is reduced. The positive-peaked (Figure 16) and negative-peaked (Figure 17) transport rates in the distributions for erosional and accretionary profiles, respectively, were located somewhat shoreward of the break point. In cases having bar development, the location of the peak offshore transport rate moved seaward together with the break point. In berm development cases, the location of the peak onshore transport rate was approximately stationary with time because the break point moved very little.

65. The magnitude of the transport rate distributions decreased rapidly with time, as seen in Figures 16 and 17. The peak transport rate was an order of magnitude smaller for the latest distribution as compared to the earliest distribution. Properties of the net transport rate distributions are discussed by Larson and Kraus (1988b).

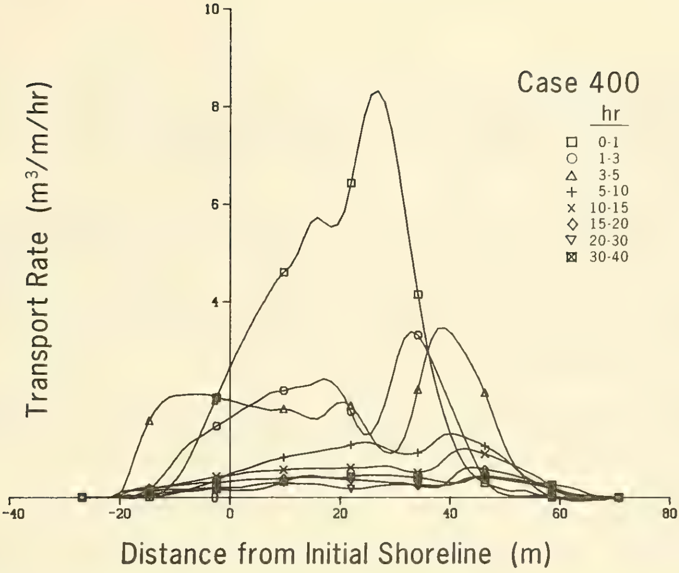


Figure 16. Time evolution of net cross-shore sand transport rate distribution for Case 400, erosional case

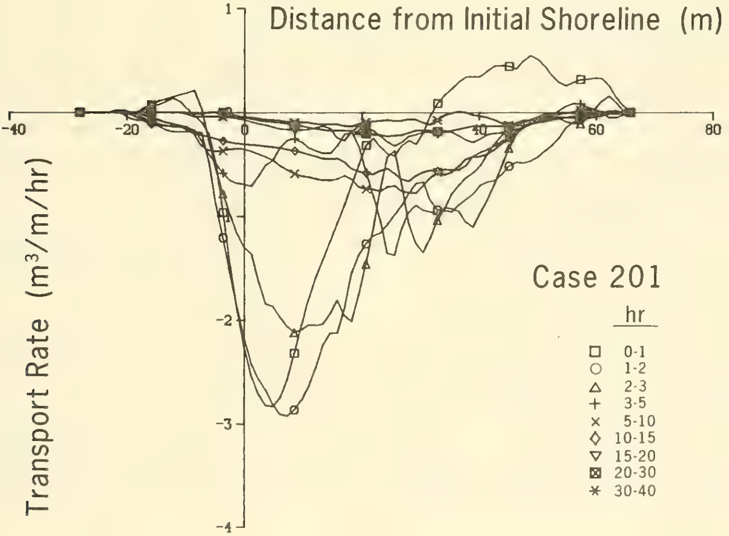


Figure 17. Time evolution of net cross-shore sand transport rate distribution for Case 201, accretionary case

ENDNOTES

1. G. W. Simmons, personal communication, December 1986. Much of the information in this section was provided by Mr. Simmons, formerly Engineering Technician, Research Division, BEB and CERC, who directly performed many of the movable-bed model tests in the LWT.

2. Saville (1957), who reported on four cases with the 0.22-mm sand, states that "... the wave heights varied appreciably (about +/- 20 %) with time and with distance along the tank due to reflections off the beach, and the change in this reflection pattern with changes in the beach profile. The heights ... are considered representative averages." The first tests done by Saville included Cases 100 and 110, in which the profile eroded to reach the end wall of the tank, producing notable reflection.

3. Saville has subsequently stated that most of the variation in wave height was probably produced by changes in the beach profile which changed reflection characteristics of the beach (Saville, personal communication, March 1987).

4. G. W. Simmons, personal communication, December 1986.

5. W. A. Birkemeier, "Data for Model Scale Effects Test," unpublished letter to Saville, US Army Corps of Engineers, Coastal Engineering Research Center, 1980.

6. Birkemeier, ibid.

7. R. R. Kohler, and C. J. Galvin, "Documentation of the Dimensionless Fall-Time Parameter used for Berm/Bar Prediction in SPM Chapter 4," unpublished Memorandum, US Army Corps of Engineers, Coastal Engineering Research Center, 1973.

8. W. N. Seelig, "Transmittal of Laboratory Notebooks on Large Wave Tank Equilibrium Tests Conducted in 1956-1957 and 1962," unpublished Memorandum, US Army Corps of Engineers, Coastal Engineering Research Center, 1981.

REFERENCES

Caldwell, J. M. 1959. "Shore Erosion by Storm Waves," Miscellaneous Paper No. 1-59, Department of the Army, Corps of Engineers, Beach Erosion Board, Library, US Army Engineer Waterways Experiment Station, Vicksburg, MS.

Collins, J. I., and Chestnutt, C. B. 1975. "Tests on the Equilibrium of Model Beaches and the Effects of Grain Shape and Size Distribution," Proceedings of Symposium on Modelling Technique, American Society of Civil Engineers, pp 907-925.

Dette, H. H., and Uliczka, K. 1987. "Prototype Investigation on Time-Dependent Dune Recession and Beach Erosion," Proceedings, Coastal Sediments '87, American Society of Civil Engineers, pp 1430-1444.

Hallermeier, R. J. 1987. "Applying Large Replicas of Shore Erosion by Storms," Proceedings, Coastal Sediments '87, American Society of Civil Engineers, pp 1415-1429.

Kajima, R., Shimizu, T., Maruyama, K., and Saito, S. 1983. "Experiments on Beach Profile Change with a Large Wave Tank," Proceedings, 18th Coastal Engineering Conference, American Society of Civil Engineers, pp 1385-1404.

Larson, M., and Kraus, N. C. 1988a (submitted). "Beach Profile Change, 1: Morphology," Journal of Waterway, Port, Coastal and Ocean Engineering, American Society of Civil Engineers.

__________. 1988b (submitted). "Beach Profile Change, 2: Cross-Shore Transport Rate," Journal of Waterway, Port, Coastal and Ocean Engineering, American Society of Civil Engineers.

Raynor, A. C., and Simmons, G. W. 1964. "Summary of Capabilities," Miscellaneous Paper No. 3-64, Library, US Army Engineer Waterways Experiment Station, Vicksburg, MS.

Saville, T., Jr. 1957. "Scale Effects in Two Dimensional Beach Studies," Transactions Seventh General Meeting, International Association for Hydraulic Research, pp A3-1 - A3-8 plus figures.

Saville, T., Jr., and Watts, G. M. 1969. (Untitled). PIANC 22nd International Navigation Conference, Section II, Subject 4, pp 249-271.

Seelig, W. N. 1983. "Understanding Beach Erosion and Accretion," Journal of Waterway, Port, Coastal and Ocean Engineering, Vol 49, No. 4, pp 490-494.

Vellinga, P. 1986. "Beach and Dune Erosion during Storm Surges," unpublished Ph.D. thesis, Delft Hydraulics Laboratory, Delft, The Netherlands, 169 pp plus references and tables.

APPENDIX A: SUPPLEMENTARY DATA

1. This appendix contains supplementary data and background information associated with the movable-bed tests performed in the LWT.

Breaking Wave Data

2. Tables A1-A15 list breaking wave height and location transcribed from the logbooks, together with the time of measurement for all generic cases (except Cases 100 and 200), for which the logbooks were missing. Table 1 in Saville (1957) lists average wave conditions for four cases which can be identified as Cases 300, 100 (and 110), 200, and 400 reading from top to bottom on that table. The average breaking wave height for Case 100 was given as 5-6 ft and that for Case 200 as 3-4 ft. Values for Case 100 in Table 1 of Saville (1957)* are denoted as the average of two tests, i.e., the average for Case 100 and Case 110. Comments in quotation marks were transcribed directly from the logbooks.

Table A1

Case 300: Breaking Wave Data

Time hr	Time min	Height ft	Location ft
0	45	7.0	108
3	10	7.5	126
11	00	6.3	136
14	20	6.0	134
21	00	7.0	138
23	05	6.5	134
25	00	6.5	138
33	35	6.7	--
34	00	6.0	--
36	05	5.8	--

---

* References cited in the appendix can be found in the reference list at the end of the main text.

Table A2

Case 400: Breaking Wave Data

Time hr	Time min	Height ft	Location ft
0	05	7.5	--
0	55	7.5	--
1	30	7.0-8.0	--
1	55	7.0	--
5	10	7.0-8.0	--
10	20	7.0-8.0	--
15	05	7.5	--
20	10	7.5	--
30	10	7.5	--
38	15	7.5	--

Table A3

Case 500: Breaking Wave Data

Time hr	Time min	Height ft	Location ft
0	15	--	104-108
1	10	6.0	98-116
3	10	6.0	118-126
11	25	6.0	128-134
20	15	6.0-6.5	140-148
27	00	6.0	148-156
32	00	6.0	153-158
46	00	6.5	160-168 (48)*
55	00	6.0-6.5	166-174 (48)
62	00	6.0-6.5	174-182 (48)
70	30	6.0-6.5	186-194 (48)
80	30	6.0-6.5 (3.0-3.5)	186-194 (48)
95	00	6.0-7.0 (3.0-5.0)	198-206 (56-66)

* Information on second break point given in parentheses.

Table A4

Case 510: Breaking Wave Data

Time		Height	Location
hr	min	ft	ft
1	10	2-3	54
3	15	2-3	56
4	55	2-3	60
9	45	2.5-3.5	70-74
20	10	2.5-3.5	72
45	00	3.0-3.5	70-74
95	00	4.0-4.5	--
105	00	5.0-5.5	78-82

Table A5

Case 600: Breaking Wave Data

Time		Height	Location
hr	min	ft	ft
1	10	3.5-4.5	48-54
2	00	4.0	48-54
14	00	4.0	46
16	00	3.5-4.0	48-54
20	20	3.5-4.0	48-54
30	10	3.0-3.5	48-54
36	00	3.5-4.0	48-54
40	15	3.6	50-54

Table A6

Case 700: Breaking Wave Data

Time hr	Time min	Height ft	Location ft
1	10	7-8	106-112
3	10	7-8	112-116
6	00	7.5-8.5	136-156
7*	00	--	162-164
15	00	8-9	142-154
22*	00	7-8	140-152
35	00	5.5-6.5	140-150
40	15	5.5-6.5	146-156
45	00	5.5-6.5	140-150
50	15	6-7	146-156
56	00	--	152-156
61	00	5-6	150-156
80	15	5-6	146-156

* Between 5-10 hr, 0.9 ft of water removed from the tank.

** "During 20-30 hr, the wave height was greatly decreased (after reflection). This seemed to have a great effect on the profile (see 40-hr profile)."

Table A7

Case 101: Breaking Wave Data

Time hr	Time min	Height ft	Location ft
1	05	5.8	82
2	35	5.6	77
3	10	6.0	76.5
5	00	6.0	81
5	30	6.0	83
6	00	6.5	83
6	30	7.0	86
7	00	7.0	86
7	30	6.5	86
8	00	6.5	86

(Continued)

Table A7 (Concluded)

Time		Height	Location
hr	min	ft	ft
8	30	5.5	87
9	00	5.5	87
9	35	5.5	87
10	00	5.5	86
10	30	5.5	86
11	00	6.0	85
11	25	5.5	87
12	15	6.0	88
13	00	5.8	88
13	50	5.7	87
14	50	5.7	91
15	00	5.4	90.5
15	55	6.2	93.5
16	40	6.0	93
17	10	5.5	93
18	20	5.5	92
18	45	5.5	92.5
19	10	5.5	92.5
20	10	6.0	95
20	35	6.0	95
21	05	6.0	95
21	30	6.0	94
22	00	6.0	94
22	30	6.0	94
23	00	5.5	94
23	30	5.5	94
24	00	6.0	92
25	15	6.2	91
26	35	6.4	93
27	10	6.3	92
29	20	6.1	94

Table A8

Case 201: Breaking Wave Data

Time		Height	Location
hr	min	ft	ft
0	15	5.0	72
0	35	4.5	68
1	00	4.5	69
1	40	6.5	68
2	00	6.5	68
3	00	7.0	70

(Continued)

Table A8 (Concluded)

Time		Height	Location
hr	min	ft	ft
4	10	6.0	74
6	00	7.0	65
8	10	5.4	64
9	20	6.2	71
9	45	6.4	69
10	10	6.6	72
10	50	7.0	71
11	10	7.0	72
11	40	7.2	70
12	20	7.0	69
12	33	6.6	69
13	10	6.2	69
13	55	6.2	68
14	40	6.5	70
15	15	6.0	71
16	10	6.3	72
17	23	6.2	70
18	00	6.5	70
18	45	6.1	66
19	10	6.5	69
19	40	6.7	70
19	55	6.6	70
20	05	6.5	74
20	30	6.6	73
21	35	6.8	74
22	30	6.6	72
23	30	6.5	72
24	10	6.3	71
24	40	6.5	71
25	20	6.2	71
25	50	6.0	70
26	40	6.2	70
27	40	6.5	71
28	20	6.5	72
29	05	6.5	70
29	50	6.2	70
31	21	6.2	70
32	07	6.0	70
34	00	6.0	69
36	00	6.0	72
38	00	6.6	75
39	35	6.0	74
39	55	6.3	74

Table A9

Case 301: Breaking Wave Data

Time		Height	Location
hr	min	ft	ft
0	05	7.0	99
0	20	7.0	99
2	10	6.5	97
3	20	7.0	93
4	20	7.0	95
6	30	7.0	95
7	00	7.0	95
7	30	7.0	96
8	00	7.0	96
8	30	6.8	96
11	05	6.5	94
11	35	6.8	93
12	45	7.0	97
13	30	7.0	99
21	00	7.5	98
22	00	7.7	98.5
23	00	8.0	98
24	00	8.0	99.5
25	00	8.2	100.5
26	00	8.2	102.5
27	00	8.3	104
28	00	8.5	106
29	00	8.5	106
30	00	8.5	108.5
32	00	8.8	112
33	00	8.6	111.3
34	00	8.3	107.5
35	00	8.2	110
36	00	8.8	112
37	00	8.8	112

Table A10

Case 401: Breaking Wave Data

Time hr	Time min	Height ft	Location ft
0	05	6.5-6.8	92
0	25	7.0	94
0	50	7.0	96
1	10	7.5	92
1	30	7.5	92
2	00	6.0	102
2	30	6.0	106
3	35	6.0	110
4	04	6.0	112
16	45	7.7	133.5
18	35	7.7	133.5
20	30	8.5	132.5
23	05	8.0	132
25	20	8.0	132
30	10	7.5	132.5
31	10	8.0	132.2
32	10	8.5	132.5
33	10	8.0	132.8
34	10	7.8	131.8
35	10	7.8	133.5
36	10	8.0	132
37	10	7.8	133
38	10	8.4	132.2
39	10	7.9	132.5
40	10	7.6	132.2
41	10	8.0	133
42	10	7.8	132.3
43	10	8.0	132.5
44	10	7.7	132.2
45	10	7.5	133
46	10	7.6	135.5
47	10	7.9	135.6
48	10	8.0	134.4
49	10	8.3	134
50	10	8.4	135.5
51	10	8.4	134.5
52	10	7.8	136
53	10	8.1	136.5

(Continued)

Table A10 (Concluded)

Time		Height	Location
hr	min	ft	ft
54	05	7.6	136.6
55	05	8.4	135.5
57	05	7.8	135.5
59	05	7.8	137
60	05	7.5	135.5
61	15	8.2	137.6
62	05	8.4	135.6
63	15	8.4	136
64	45	8.0	136.5
65	45	7.5	137

Table A11

Case 501: Breaking Wave Data

Time		Height	Location
hr	min	ft	ft
0	20	6.0	138
1	10	6.0	138
1	49	6.2	138
3	05	5.5	118
5	00	6.1	126
7	05	6.0	132
7	40	6.2	136
8	40	6.2	136
9	10	6.2	138
9	45	6.2	136
10	10	6.0	136
11	25	6.2	138
12	05	5.3	125
14	05	5.2	126
17	35	5.5	134
18	05	5.5	134
19	05	5.5	136
19	50	5.3	134
20	05	5.3	136
21	50	5.3	134
23	25	5.5	136
24	05	4.5	128
25	37	4.2	128
26	02	4.5	132
26	44	4.3	137
27	02	5.6	136

(Continued)

Table A11 (Concluded)

Time hr	 min	Height ft	Location ft
29	00	5.2	144
30	05	5.2	144
31	05	5.4	146
33	40	5.5	148
35	05	5.3	143.5
36	00	5.2	148
37	08	5.3	144
38	12	5.4	149
41	05	5.2	154
43	25	5.0	158
45	45	5.0	158
46	40	5.2	158
47	45	5.2	158
49	20	5.2	158
51	05	5.2	151
51	55	5.4	150
53	05	5.5	151
54	10	5.4	150
56	00	5.3	151
56	55	5.4	150
59	15	5.2	154

Table A12

Case 501: Data for Secondary Wave Breaking

Time hr	 min	Height ft	Location ft
37	08	1.8	24
38	12	2.2	25
41	05	2.5	23
42	35*	2.4	24
43	25	2.4	24
44	15	2.5	24
45	45	2.5	24
46	40	2.5-3.0	24
47	45	2.8	24
49	20	3.0	24
51	05	2.5	19

(Continued)

---

* "This breaker diminishing in form; not as distinct as previously."

Table A12 (Concluded)

Time hr	Time min	Height ft	Location ft
51	55	2.6	20
53	05	2.5	19
54	10	2.5	17
56	00	2.6	18
56	55	2.6	19
59	15	2.5	20

Table A13

Case 701: Breaking Wave Data

Time hr	Time min	Height ft	Location ft
0	40	10	106
1	35	9.6	102
2	30	4.0	98
4	45	4.5	88
5	15	4.5	88
6	45	5.0	88
7	10	5.5	88
8	30	6.0	97
8	50	6.0	97
9	30	6.0	98
9	50	6.0	98
7	55*	7.3	98
8	55*	7.5	100
9	50*	7.7	94
10	50	6.8	104
11	50	6.5	98
12	35	6.6	93
13	00	6.0	100
13	35	5.5	104
17	10	6.0	100
17	40	6.0	100
18	05	5.5	98
18	35	5.5	101
19	00	5.5	101
20	00	5.5	101
21	00	5.5	100
22	00	6.0	102
23	00	6.0	104

(Continued)

* In order of appearance in the logbook.

Table A13 (Concluded)

Time hr	min	Height ft	Location ft
24	10	8.0	98
25	00	7.5	99
27	35	6.0	105
28	30	6.0	110
30	00	6.0	101
32	30	8.0	104
35	25	7.0	109
36	30	7.0	109
37	30	7.0	108
38	00	7.0	107
39	00	7.0	108
39	30	7.0	108

Table A14

Case 801: Breaking Wave Data

Time hr	min	Height ft	Location ft
0	10	3.0	48
0	40	3.0	48
1	10	3.2	46
1	55	3.4	45
2	40	3.2	45
5	00	1.9	39
5	35	1.8	38
8	00	3.0	44
8	30	2.5	44
9	00	2.5	44
9	30	2.5	46
10	00	2.5	45
10	30	2.5	45
11	00	3.0	43
11	30	3.0	43
12	00	3.0	43
12	30	3.0	43
13	00	3.0	43
15	00	2.3	38
16	23	2.3	40
17	05	2.2	39
19	05	2.0	38
20	00	2.0	38
21	00	2.0	40
22	00	2.3	40

(Continued)

Table A14 (Concluded)

Time hr	 min	Height ft	Location ft
23	00	2.5	40
24	00	2.5	40
25	00	2.5	40
26	00	2.5	38
27	00	2.5	38
28	00	2.5	38
29	09	2.2	38
29	57	2.5	40
32	20	2.1	39
33	40	2.0	39
37	30	2.5	43
38	00	2.5	43
39	00	2.5	43
40	00	2.5	43
41	00	2.5	43
42	00	2.5	42
43	00	2.5	42
45	00	2.1	38
46	00	2.0	37
48	00	2.0	38

Table A15

Case 901: Breaking Wave Data

Time hr	 min	Height ft	Location ft
0	35	6.5	94
1	05	7.0	102
1	30	7.0	102
2	00*	7.0	102
2	00**	7.0	102
2	30	7.0	106
3	06*	7.0	106
3	06**	7.5	110
3	30	7.5	109
4	12*	7.5	109
4	12**	7.2	110
4	30	7.2	109

(Continued)

* "Stop" (wave generator).

** "Start" (wave generator).

Table A15 (Concluded)

Time hr	Time min	Height ft	Location ft
5	12*	7.2	109
5	12**	7.0	114
5	30	7.0	114
5	57*	7.0	114
5	57**	6.8	118
6	12	6.8	120
7	10	5.9	120
8	10	6.3	127
10	05	5.3	129
11	05	6.0	128
13	25	6.2	119
14	29	6.5	116
15	45	6.5	114
16	52	6.8	114
17	37	6.6	120
18	15	6.6	120
19	00	6.5	124
22	00	6.0	135
23	05	6.4	132
24	56	6.0	132
25	05	6.0	132
25	50	5.8	121
26	50	5.8	122
28	00	6.4	122
29	00	6.2	120
29	15	5.8	120
30	05	5.4	120
31	46	6.1	126
32	05	6.3	131
33	05	5.3	135
34	34	5.0	139
35	15	5.1	132
37	06	5.8	129
37	15	5.5	128
37	35	5.6	129
38	15	5.6	126
39	15	6.0	122
40	28	6.0	122
41	21	6.0	120
41	47	6.2	120
42	34	5.6	122
43	18	5.0	121

---

* "Stop" (wave generator).
** "Start" (wave generator).

Runup Data

3. Runup measurements were available for all cases except Cases 100, 200, 300, and 400. The data are given in Table A16 in the original units of feet. Runup was measured for the first several waves generated at the start of the case and is defined as the maximum horizontal distance traveled from the initial still-water shoreline.

Table A16

Runup of Initial Waves*

Wave No.	Case No. 500	600	700	101	201	301	401	501	701	801	901
1	32	27	67	70	14	63	58	18	89	21	64
2	20	34	56	61	14	33	46	14	46	21	24
3	30	36	52	47	22	45	20	13	65	15	28
4	14	36	70	45	36	37	27	14	75	17	28
5	16	32	40	44	22	57	26	14	59	18	25
6	10	37	42	46	28	32	21	14	75	20	44
7	18	33	52	45	22	48	26	16	66	20	36
8	14	37	53	44	24	42	30	20	67	20	24
9	14	36	--	43	24	48	47	13	68	19	28
10	14	37	--	45	26	--	30	11	69	21	32
11	12	36	--	--	26	--	16	13	72	20	40
12	--	37	--	--	--	--	24	11	69	16	40
13	--	--	--	--	--	--	28	14	70	26	26
14	--	--	--	--	--	--	26	18	--	15	--
15	--	--	--	--	--	--	27	15	--	14	--
16	--	--	--	--	--	--	34	13	--	15	--
17	--	--	--	--	--	--	47	13	--	20	--
18	--	--	--	--	--	--	18	22	--	20	--
19	--	--	--	--	--	--	--	26	--	17	--
20	--	--	--	--	--	--	--	22	--	21	--
21	--	--	--	--	--	--	--	9	--	21	--

* In feet.

Water Temperature and Fall Velocity

4. This section contains data on water temperature and sand fall velocity. Much of this information was compiled from an unpublished letter of Seelig[8][*] Seelig cross-referenced a number of sources and computed midmonth

---

[*] Endnotes section appears at the end of the main text.

averages for each of 4 years of temperature measurements made in the LWT from 1969 to 1973. The wave generator was run to mix the water prior to measurement. A clear seasonal cycle was apparent, and the four averages for each month showed relatively small differences. Therefore, a grand average for each month is expected to provide a reasonable estimate of water temperature in the LWT during the movable-bed tests. Fall velocities for the 0.22-mm and 0.40-mm sands were measured by Seelig using the CERC Rapid Sediment Analyzer and water at 20° C. Fall velocities were then estimated at the other temperatures. This material was reviewed in the course of preparing this report and compiled in Table A17 for direct reference to the various cases.

Table A17

Representative Average Monthly Water Temperatures and Sand Fall Velocities

Case No.	Approx. Date month-year	Temperature deg C	Fall Velocity cm/sec
100	3-56	6	3.1
110	7-56	26	3.8
200	5-56	18	3.6
300	11-56	12	3.3
400	12-56	7	3.1
500	3-57	6	3.1
510	5-57	18	3.6
600	6-56	22	3.7
610	6-56	22	3.7
700	6-56	22	3.7
101	7-62	26	5.9
201	7-62	26	5.9
301	6-62	22	5.7
401	5-62	18	5.5
501	7-62	26	5.9
701	7-62	26	5.9
801	7-62	26	5.9
901	8-62	26	5.9
911	8-62	26	5.9

5. Water temperature in the LWT was recorded in the logbooks for Case 300. Elapsed time of wave action and water temperature are given in Table A18. Table A18 shows measured temperatures of about 5° C, whereas the estimate for this case in Table A17 gives 12° C. This difference has a small effect on fall velocity for the 0.22-mm sand.

Table A18

Water Temperatures Recorded During Case 300

Time hr	Temperature deg C
30	3.9
32	5.0
34	5.0
36	5.0
38	5.0
40	5.0
40	4.4
42	5.0
44	5.0
46	5.0
48	5.0
50	4.4

Water Level Variation for Case 911

6. Table A19 lists elapsed times and water elevation change for the simulated tidal cycle run during Case 911.

Table A19

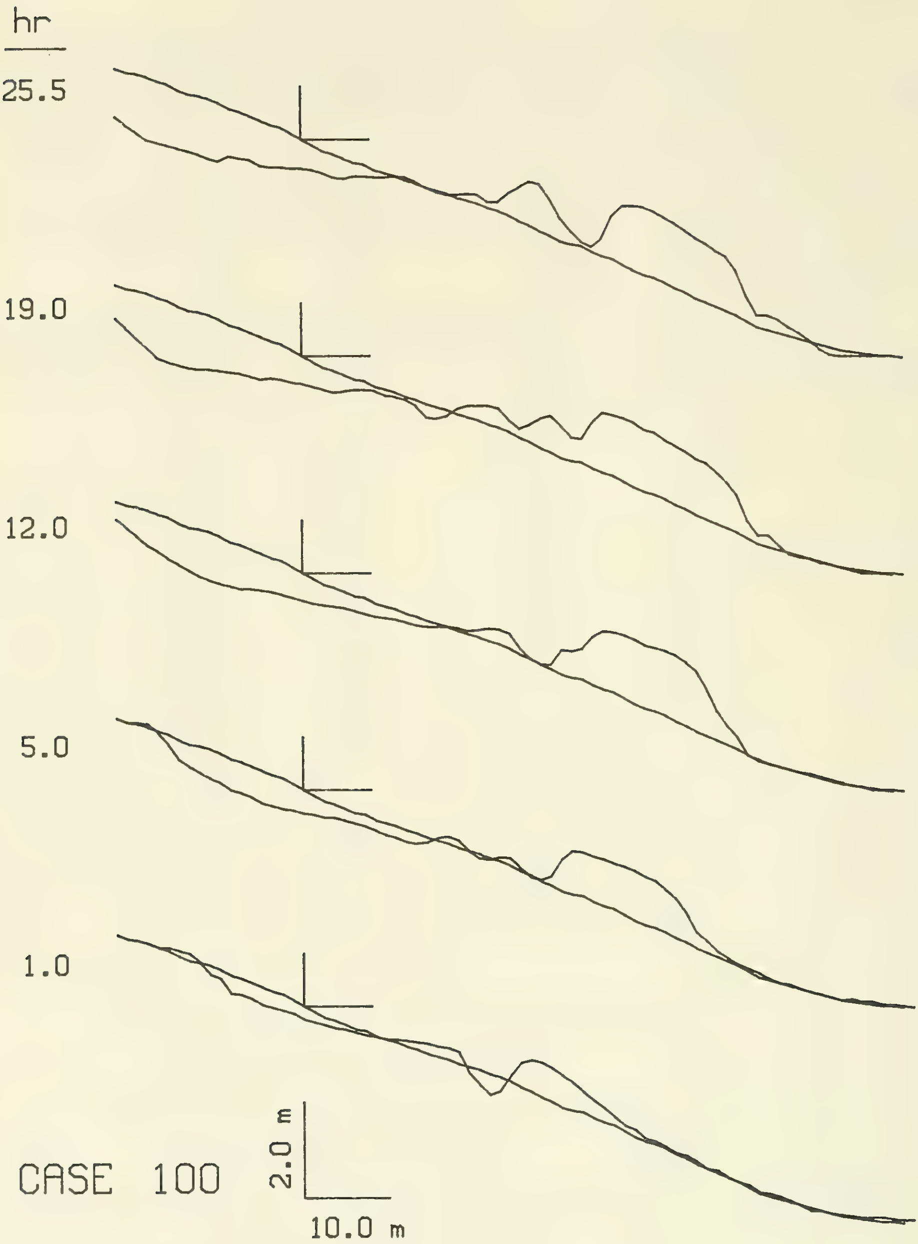
Elapsed Time and Water Elevation Change of Case 911

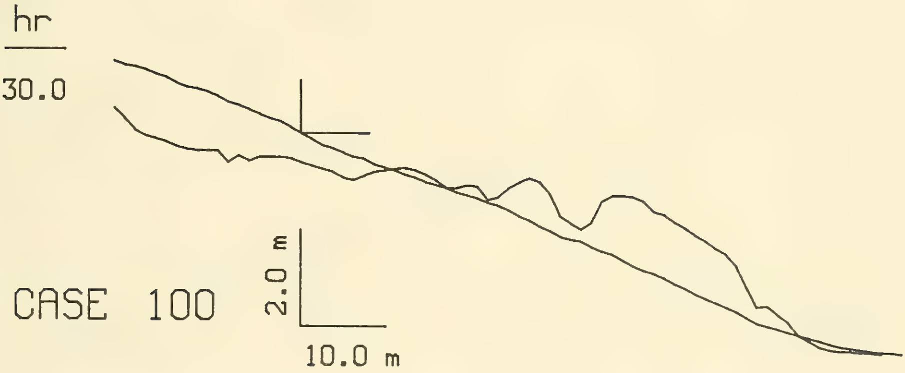
Time hr min	Elevation ft	Time hr min	Elevation ft
0 0	0.00	21 42	-1.20
0 35	0.34	22 48	-1.20
1 00	1.00	23 48	-1.00
1 30	1.00	24 33	-0.40
2 00	1.37	24 48	-0.40
2 30	1.37	25 03	0.00
3 06	1.37	25 48	0.40
3 30	1.37	26 26	1.00
4 12	1.37	26 48	1.00
4 30	1.00	27 21	1.45
5 12	1.00	27 54	1.45
6 12	0.00	29 00	1.45
6 27	0.00	29 30	1.00
7 12	-0.37	30 00	1.00
8 12	-1.00	30 45	0.40
9 18	-1.20	31 00	0.00
10 00	-1.20	32 00	-0.40
10 24	-1.20	33 00	-1.00
11 24	-1.00	34 06	-1.20
12 09	-0.45	35 12	-1.20
12 24	0.00	36 12	-1.00
13 24	0.45	36 57	-0.40
13 54	1.00	37 12	0.00
14 24	1.00	37 27	0.00
15 03	1.45	38 12	0.40
15 30	1.45	38 42	1.00
16 36	1.45	39 12	1.00
17 04	1.00	39 42	1.45
17 36	1.00	40 18	1.45
18 21	0.00	41 24	1.45
18 51	0.00	42 24	1.00
19 36	-0.40	43 10	1.00
20 36	-1.00	43 30	0.00

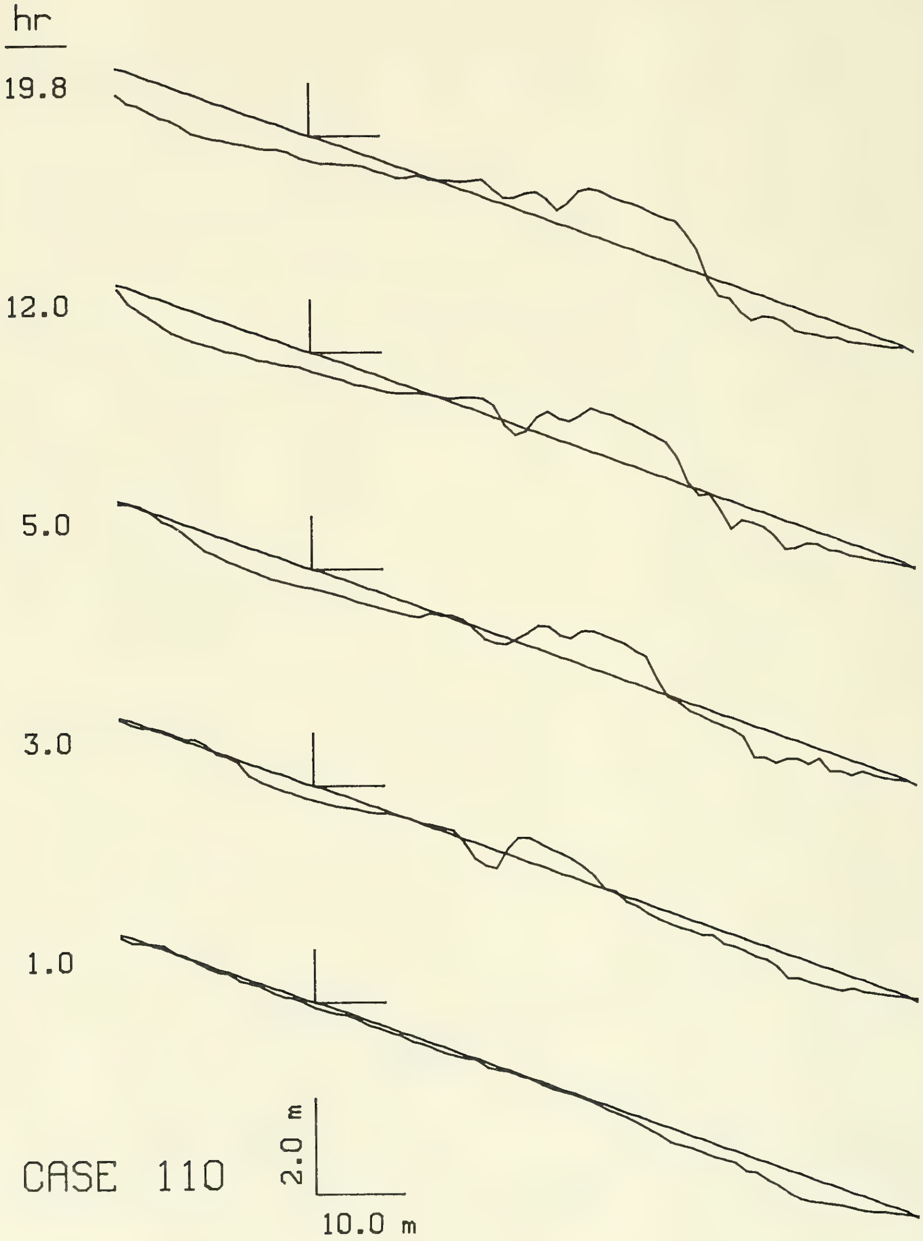
APPENDIX B: PLOTS OF BEACH PROFILES

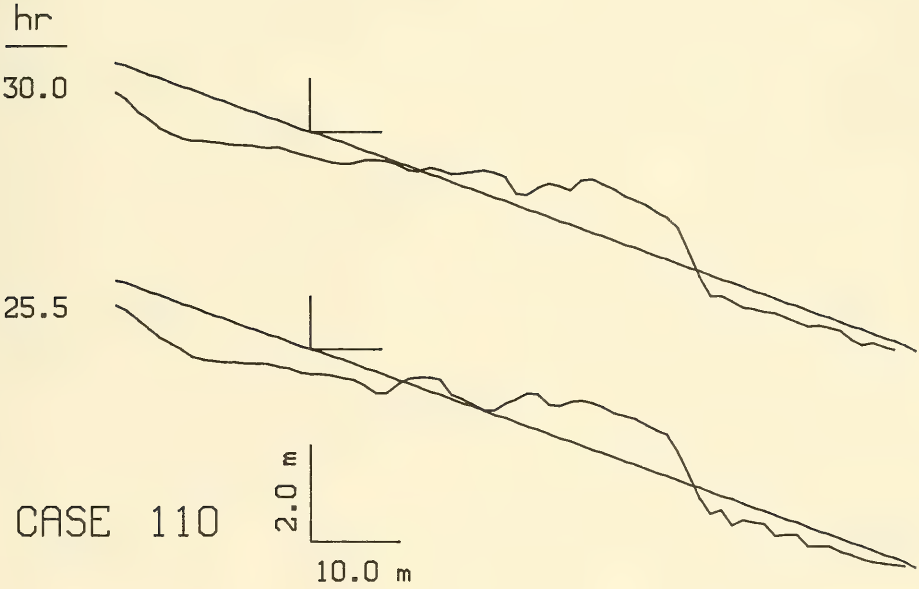
1. This appendix contains plots of the profile survey data contained in Appendix C. The plots in Figure B1 are presented in order of case number and survey time as listed in Table 1 of the main text. Each profile is plotted together with the initial profile for the case. Case number is indicated in the bottom left corner of each sheet, and survey time is given on the left edge. The location of the initial still-water shoreline is indicated by two lines joining at right angles.

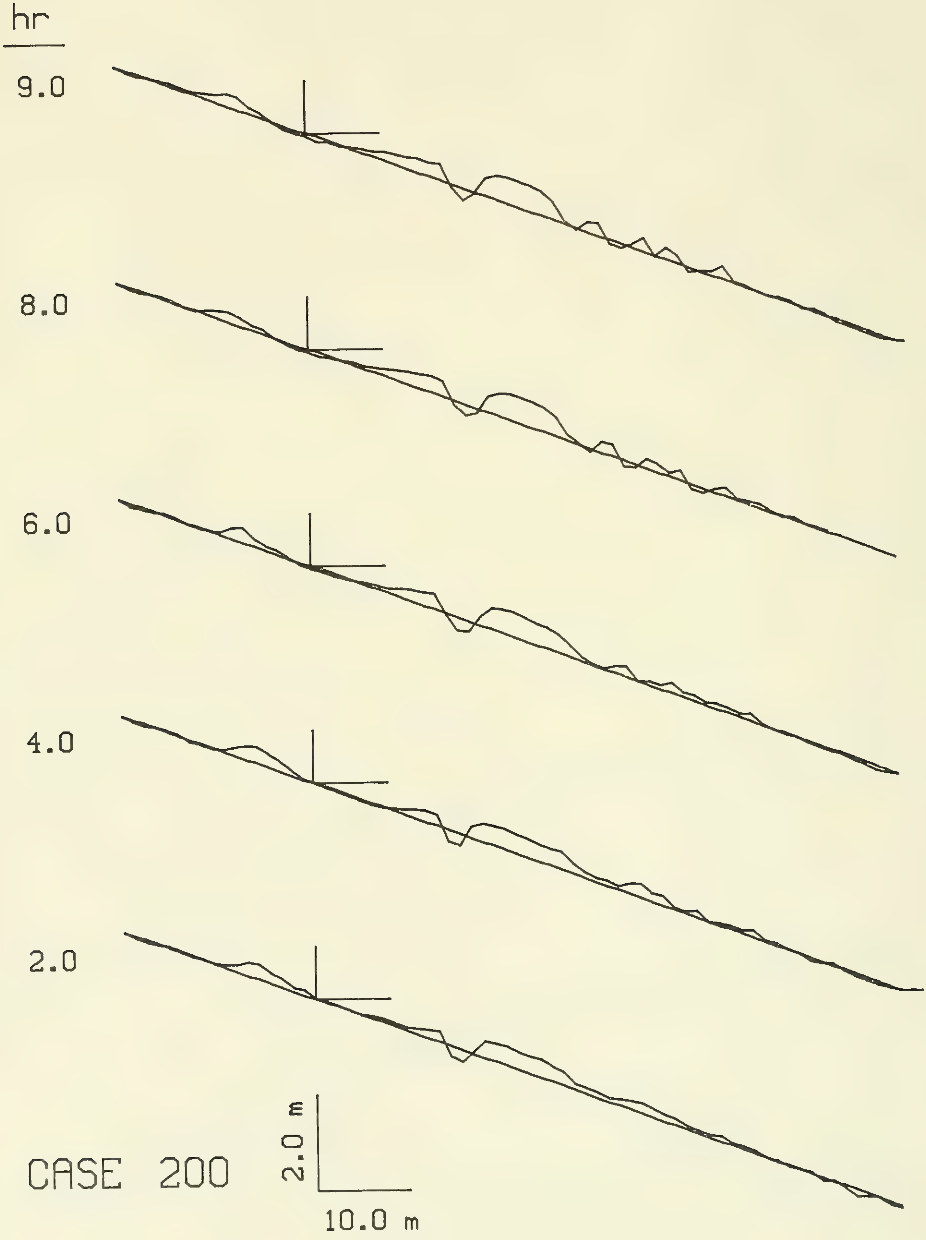
2. Distance-elevation survey pairs listed in Appendix C are given in units of feet, whereas the plots are in metric units. The scale is shown on the bottom left side of each sheet.

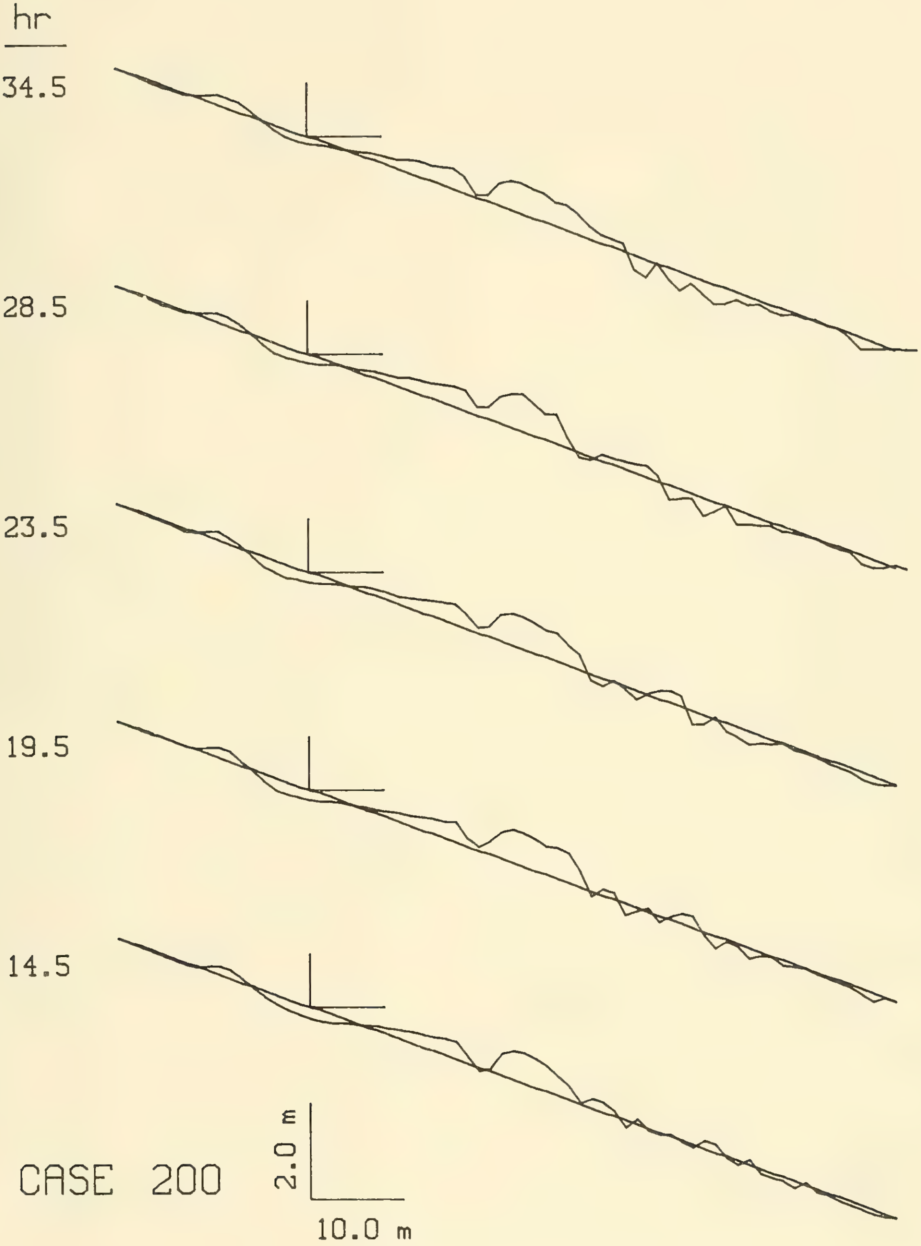

hr
25.5
19.0
12.0
5.0
1.0
CASE 100
2.0 m
10.0 m

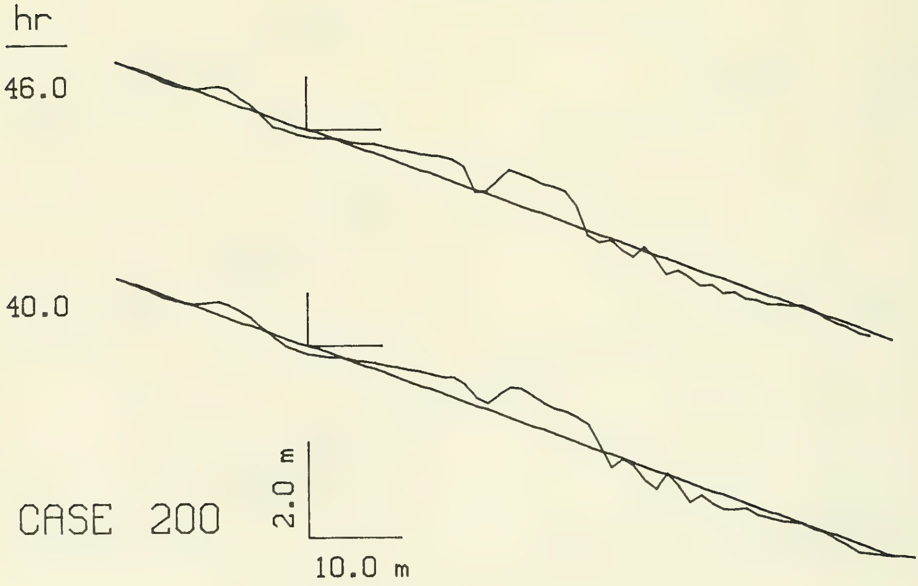

hr
30.0
CASE 100
2.0 m
10.0 m

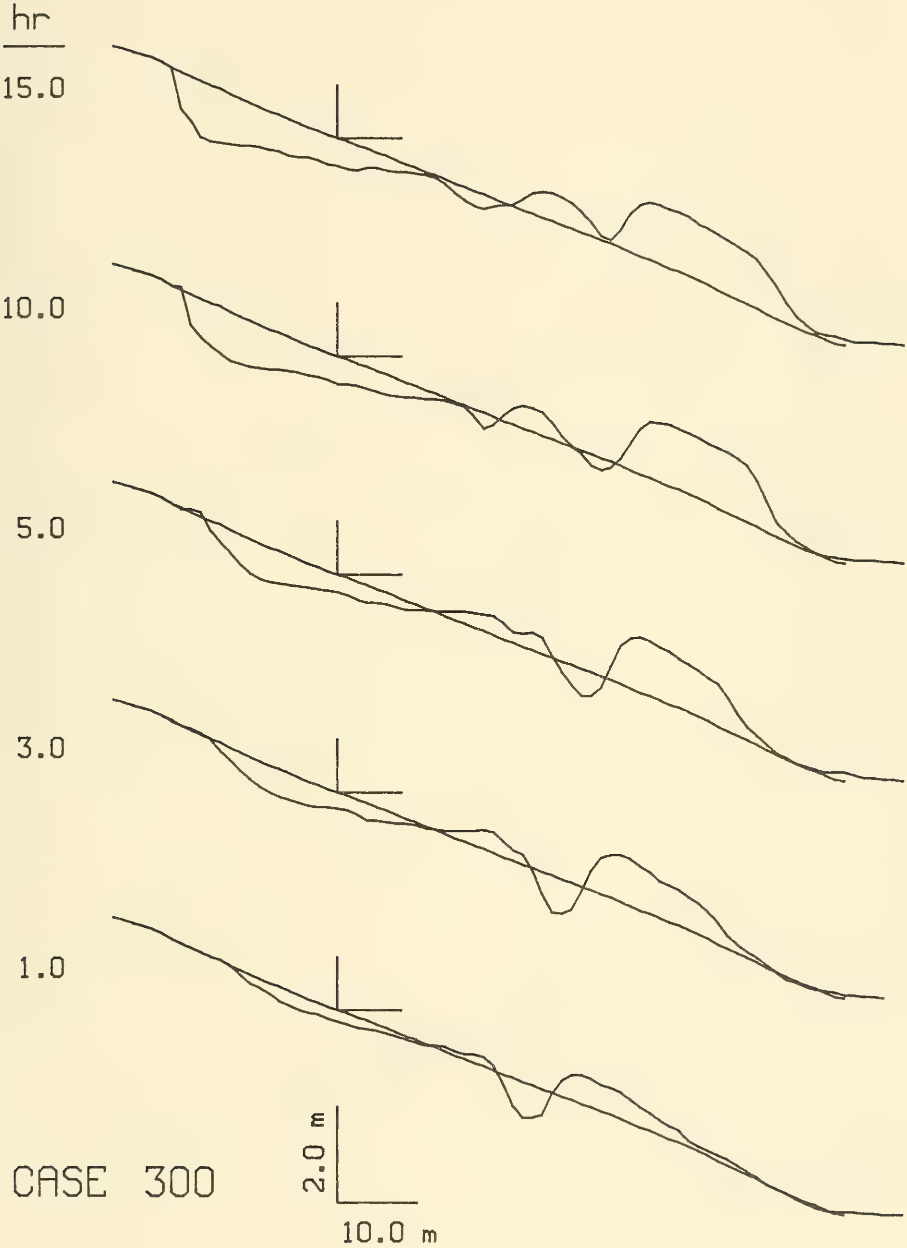

hr
19.8
12.0
5.0
3.0
1.0
CASE 110
2.0 m
10.0 m

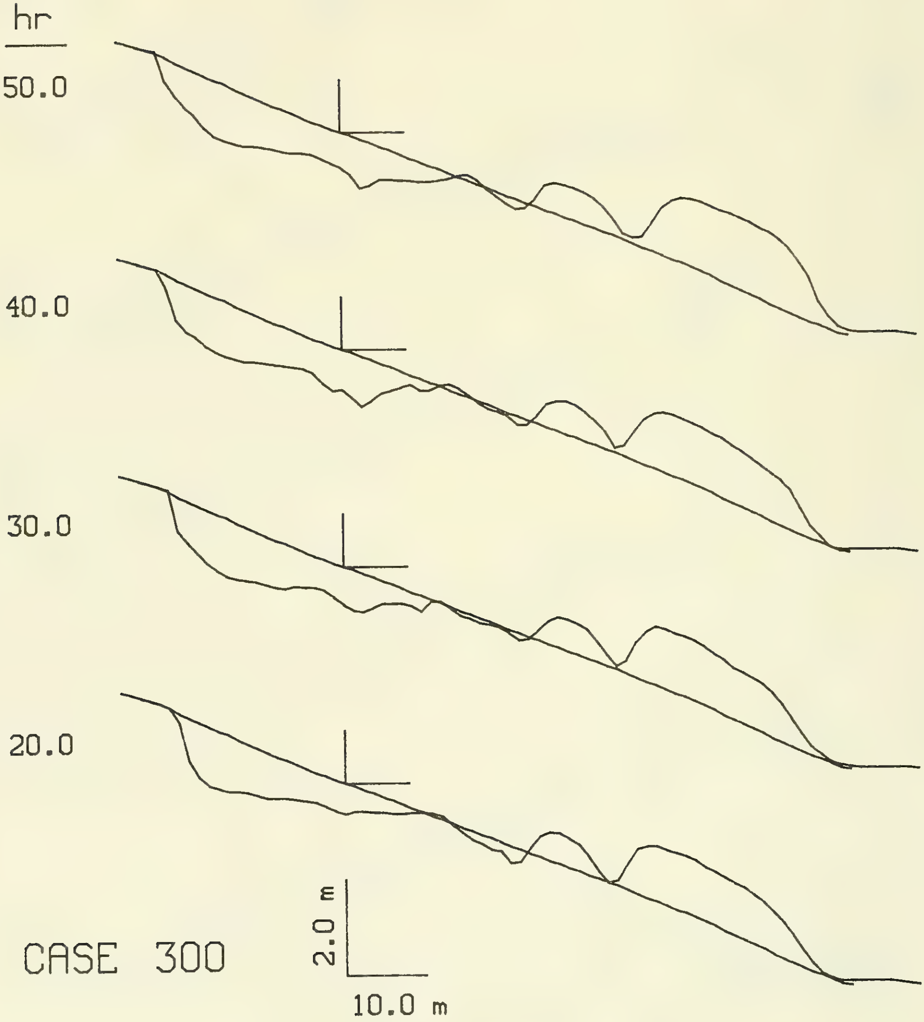

hr
30.0
25.5
CASE 110
2.0 m
10.0 m

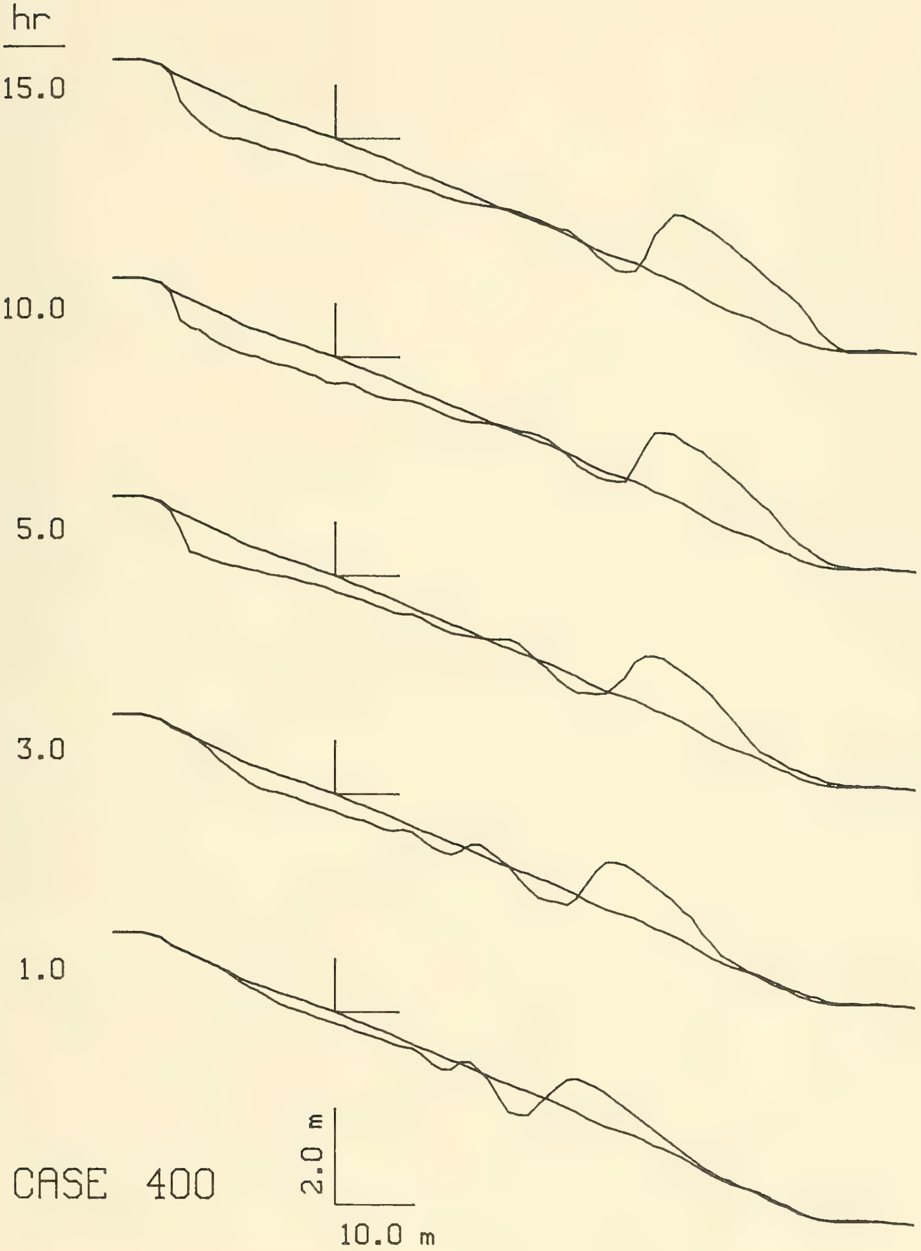

hr
9.0
8.0
6.0
4.0
2.0
CASE 200
2.0 m
10.0 m

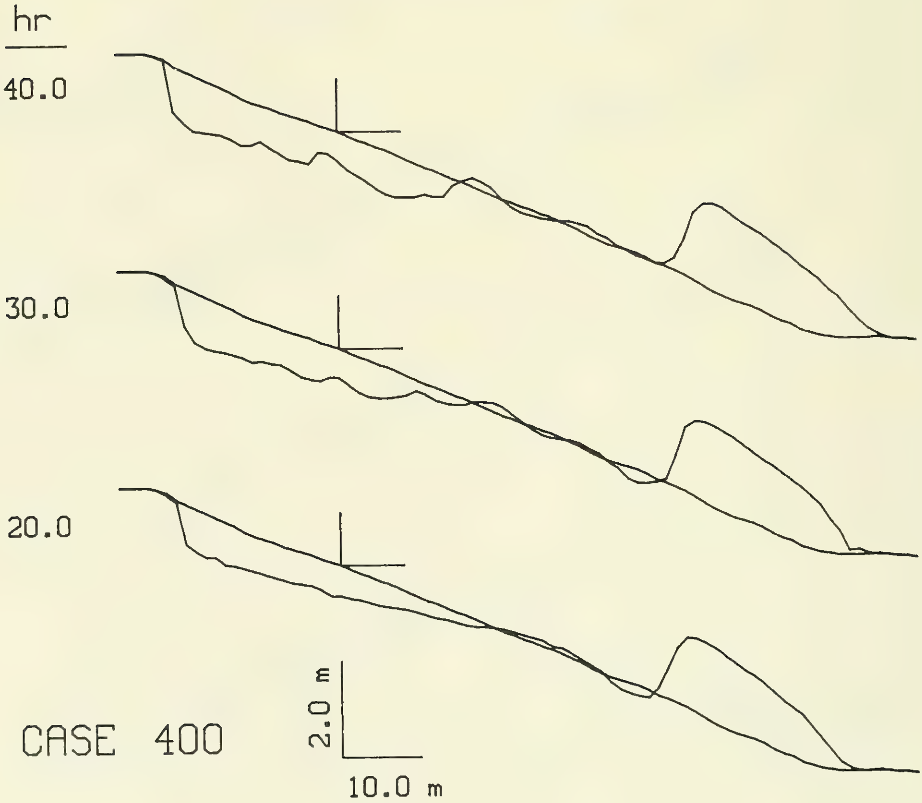

hr
34.5
28.5
23.5
19.5
14.5
CASE 200
2.0 m
10.0 m

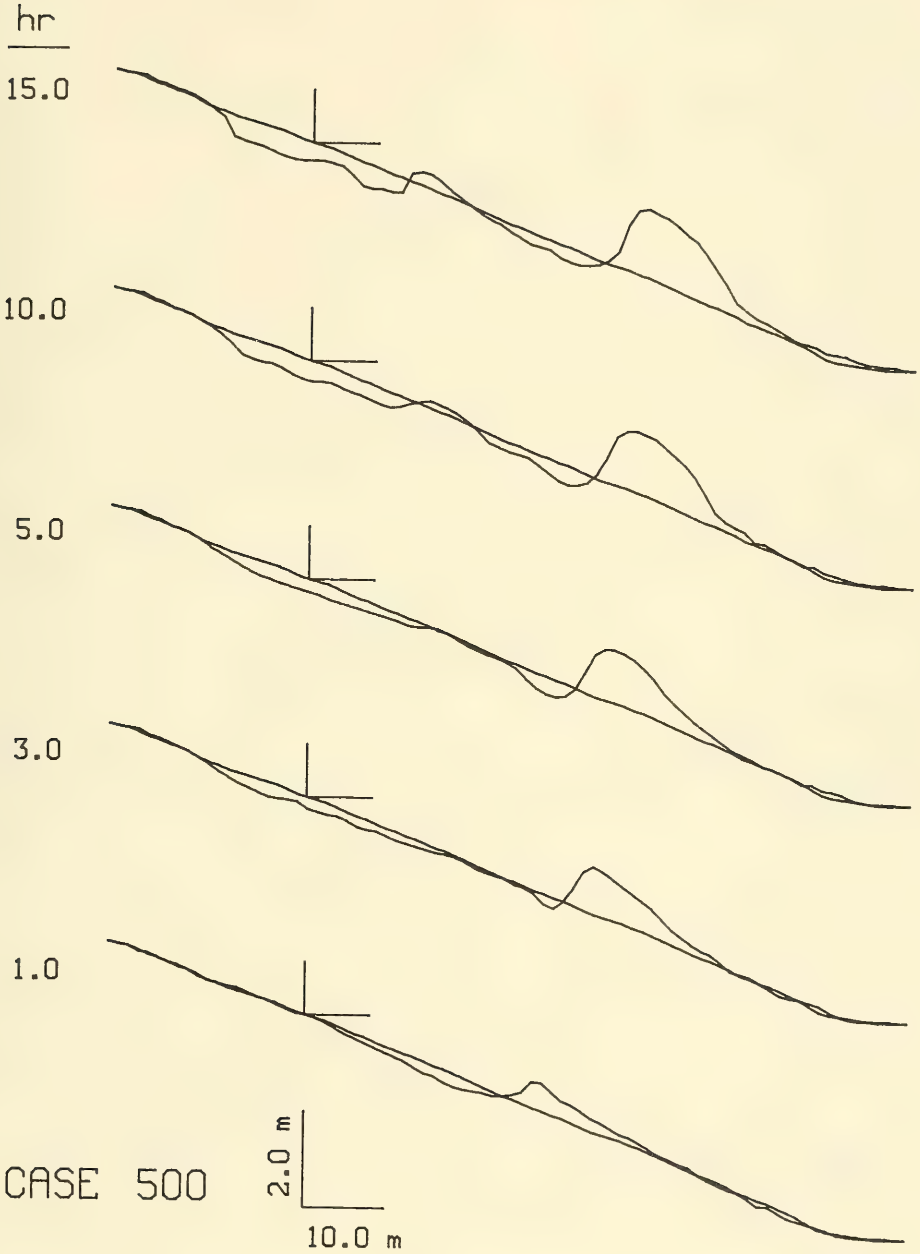

hr
46.0
40.0
CASE 200
2.0 m
10.0 m

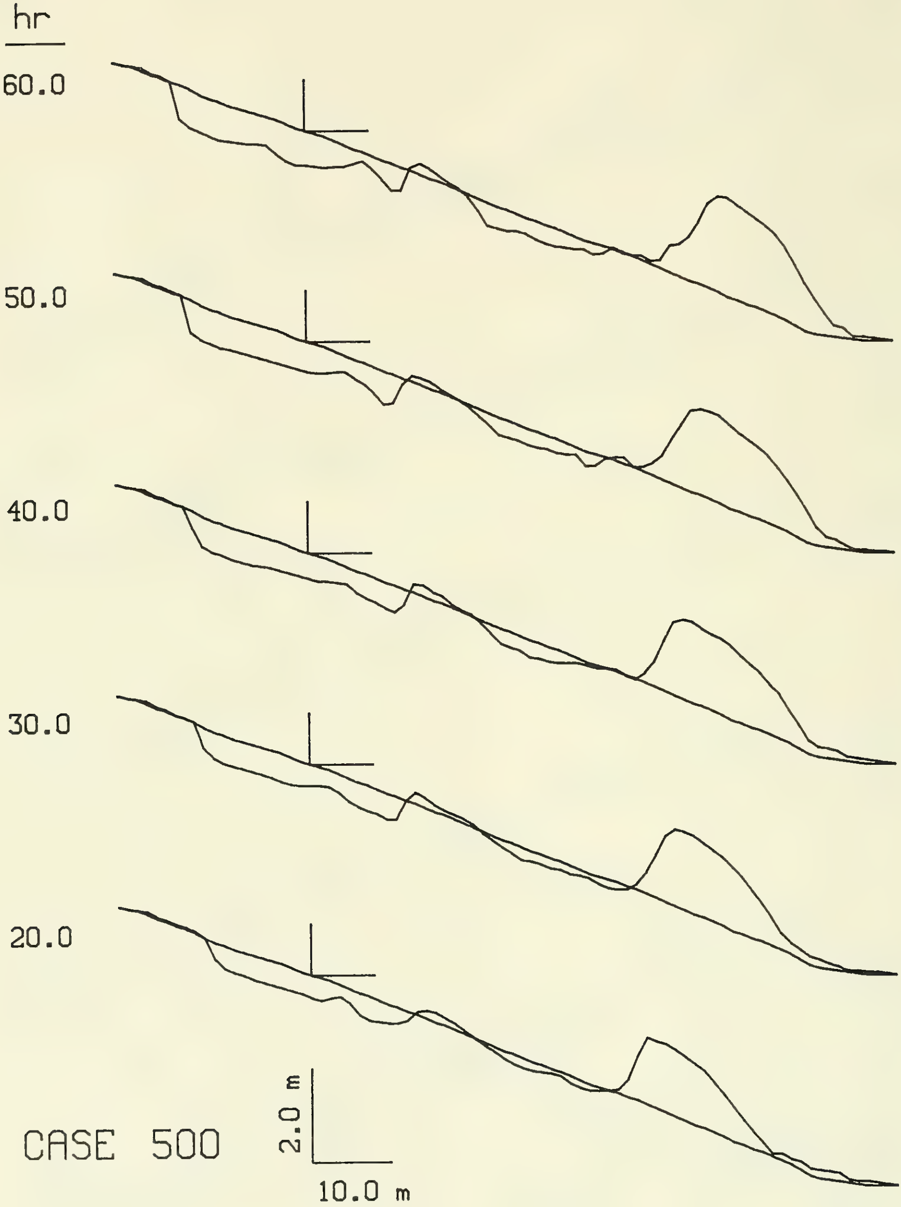

hr
15.0
10.0
5.0
3.0
1.0
CASE 300
2.0 m
10.0 m

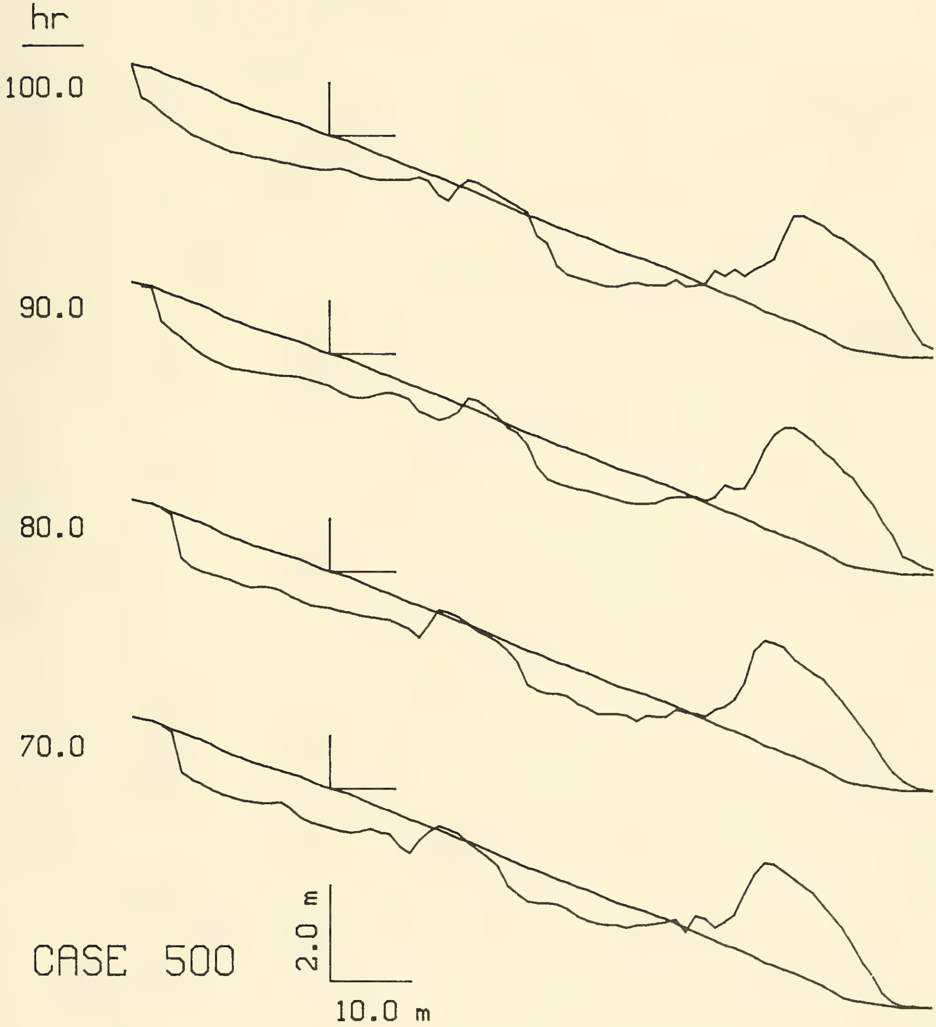

hr
50.0
40.0
30.0
20.0
CASE 300
2.0 m
10.0 m

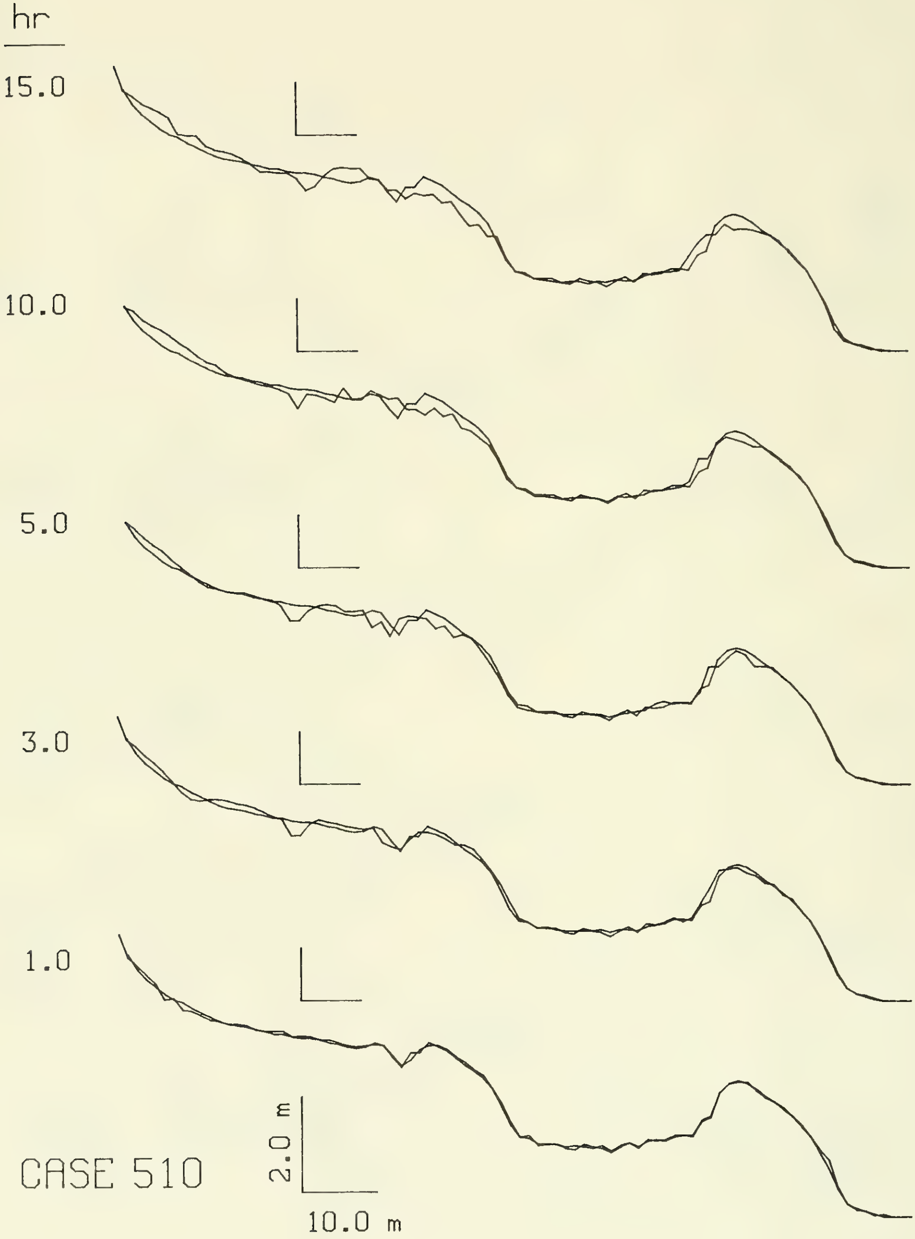

hr
15.0
10.0
5.0
3.0
1.0
CASE 400
2.0 m
10.0 m

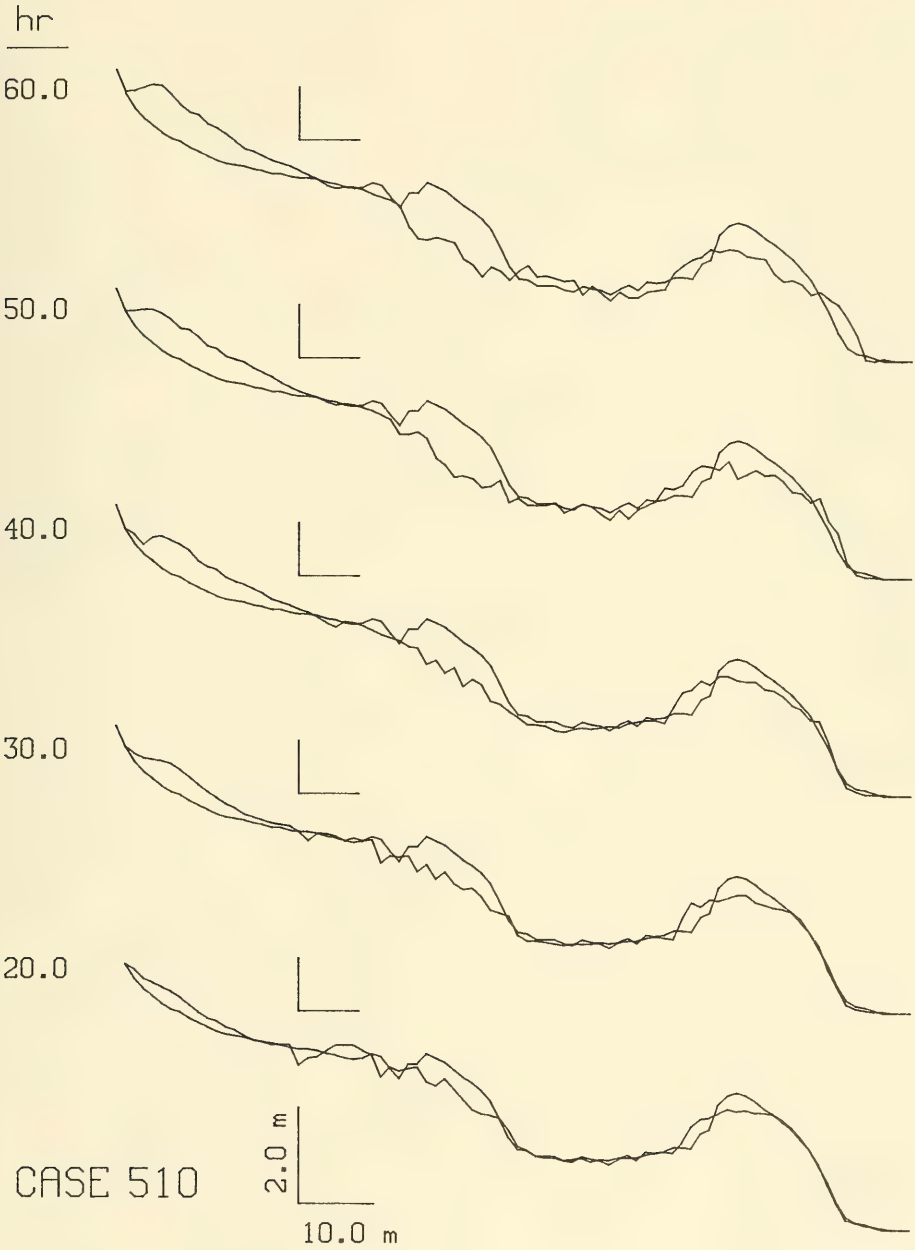

hr
40.0
30.0
20.0
CASE 400
2.0 m
10.0 m

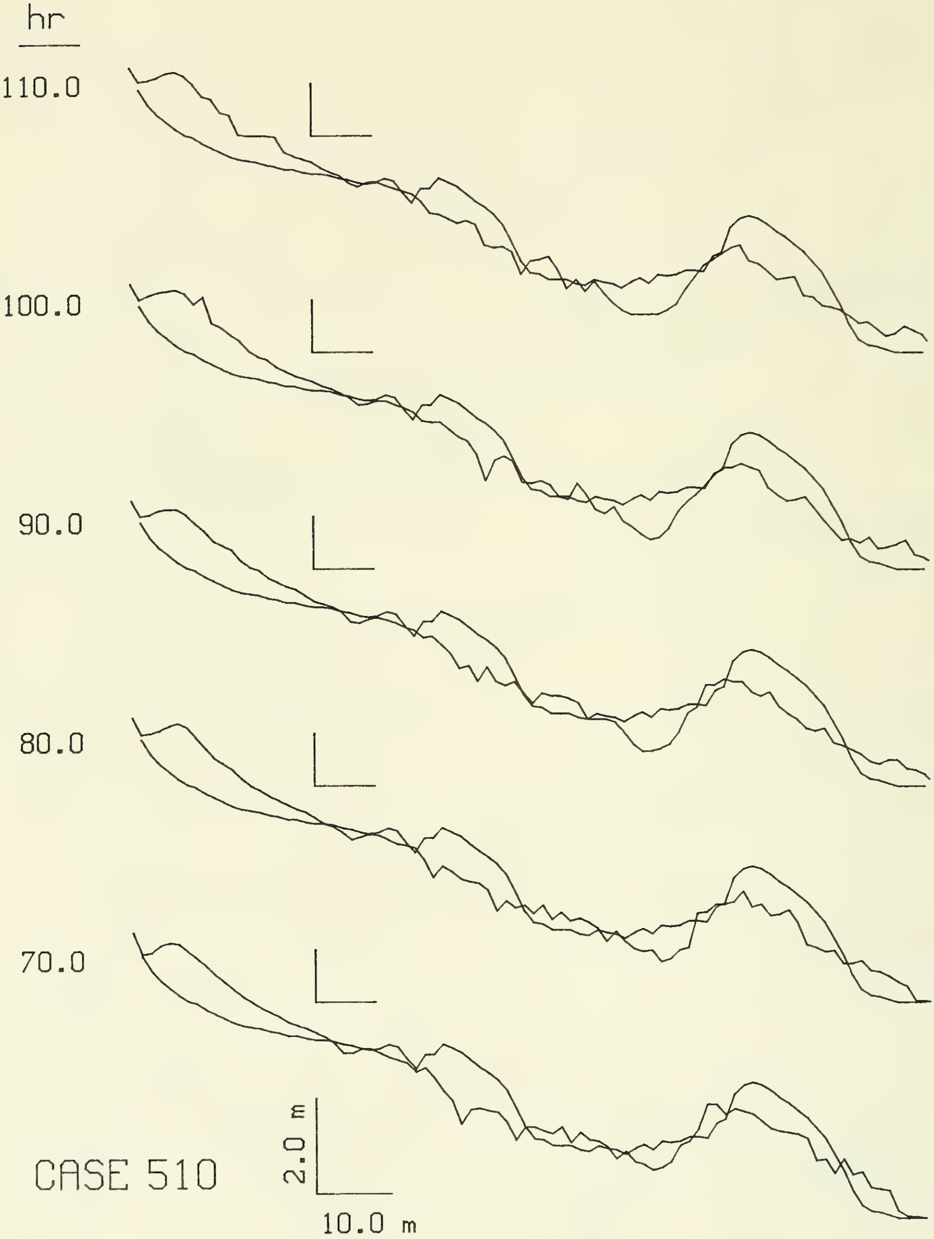

hr
15.0
10.0
5.0
3.0
1.0
CASE 500
2.0 m
10.0 m

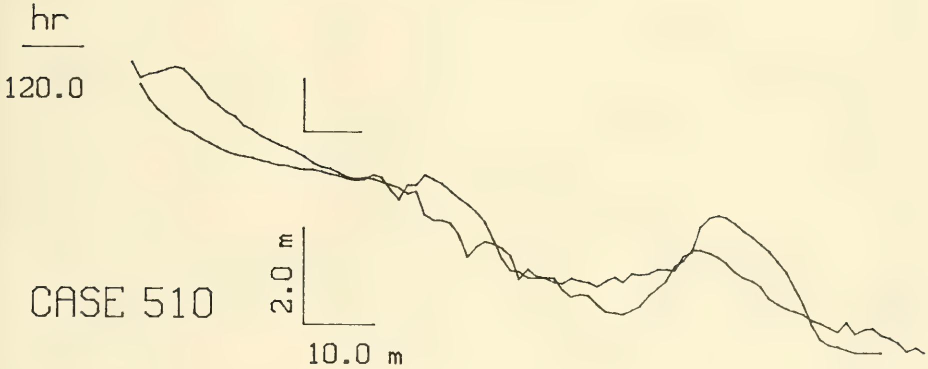

hr
60.0
50.0
40.0
30.0
20.0
CASE 500
2.0 m
10.0 m

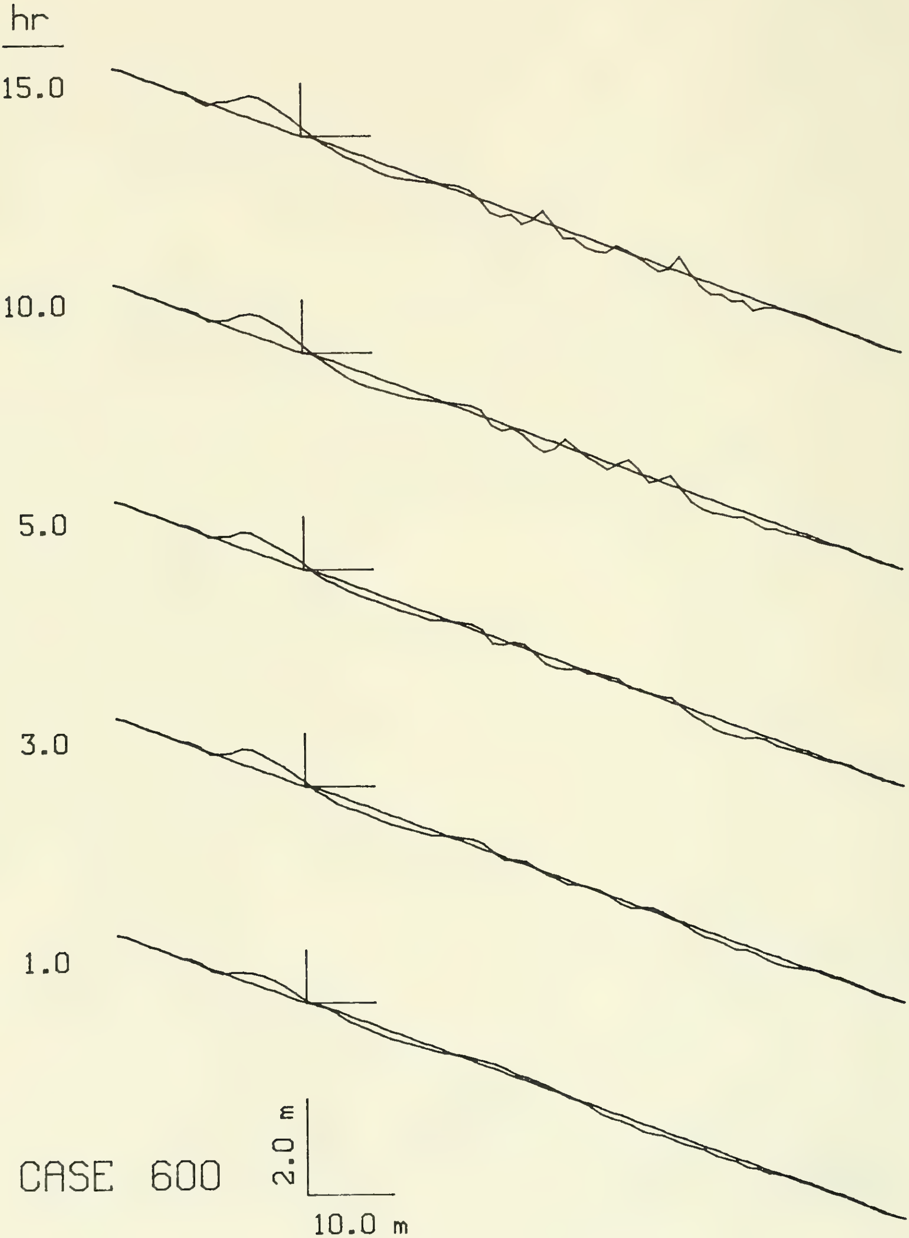

hr
100.0
90.0
80.0
70.0
CASE 500
2.0 m
10.0 m

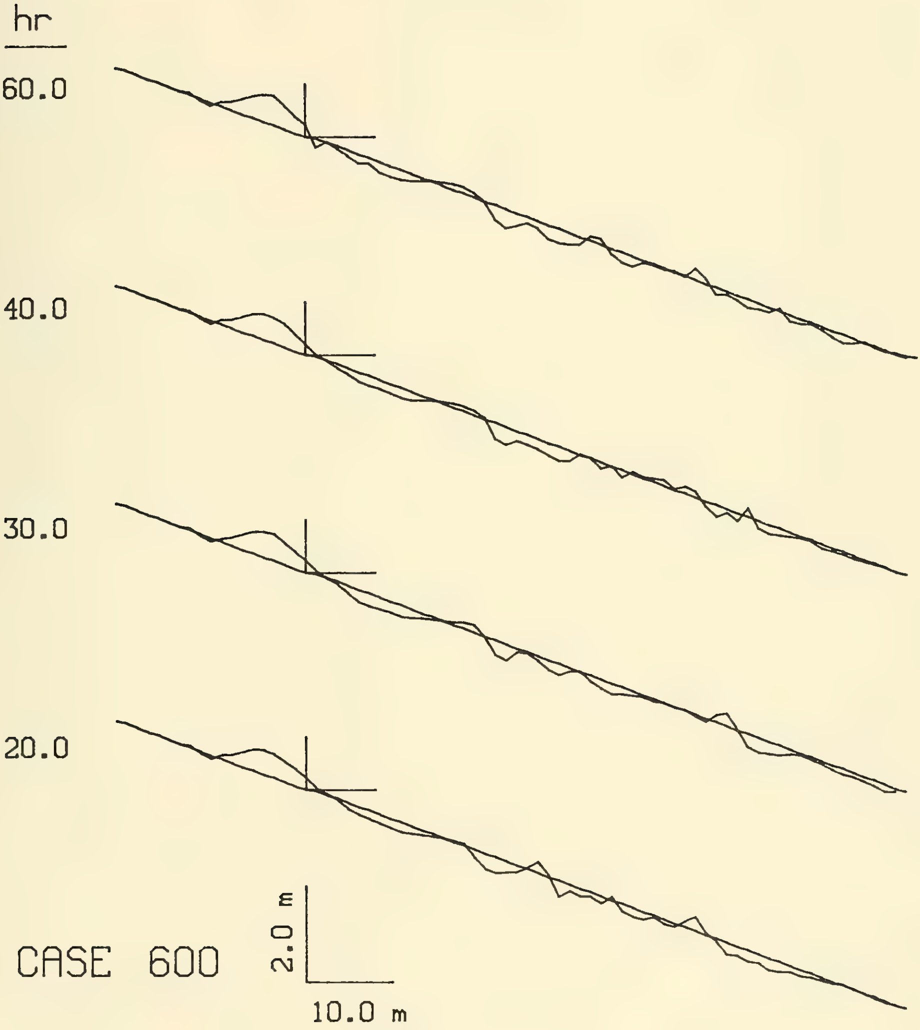

hr
15.0
10.0
5.0
3.0
1.0
CASE 510
2.0 m
10.0 m

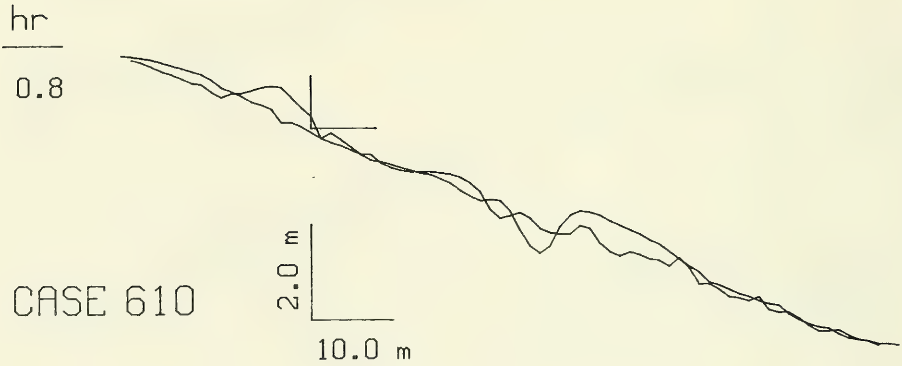

hr
60.0
50.0
40.0
30.0
20.0
CASE 510
2.0 m
10.0 m

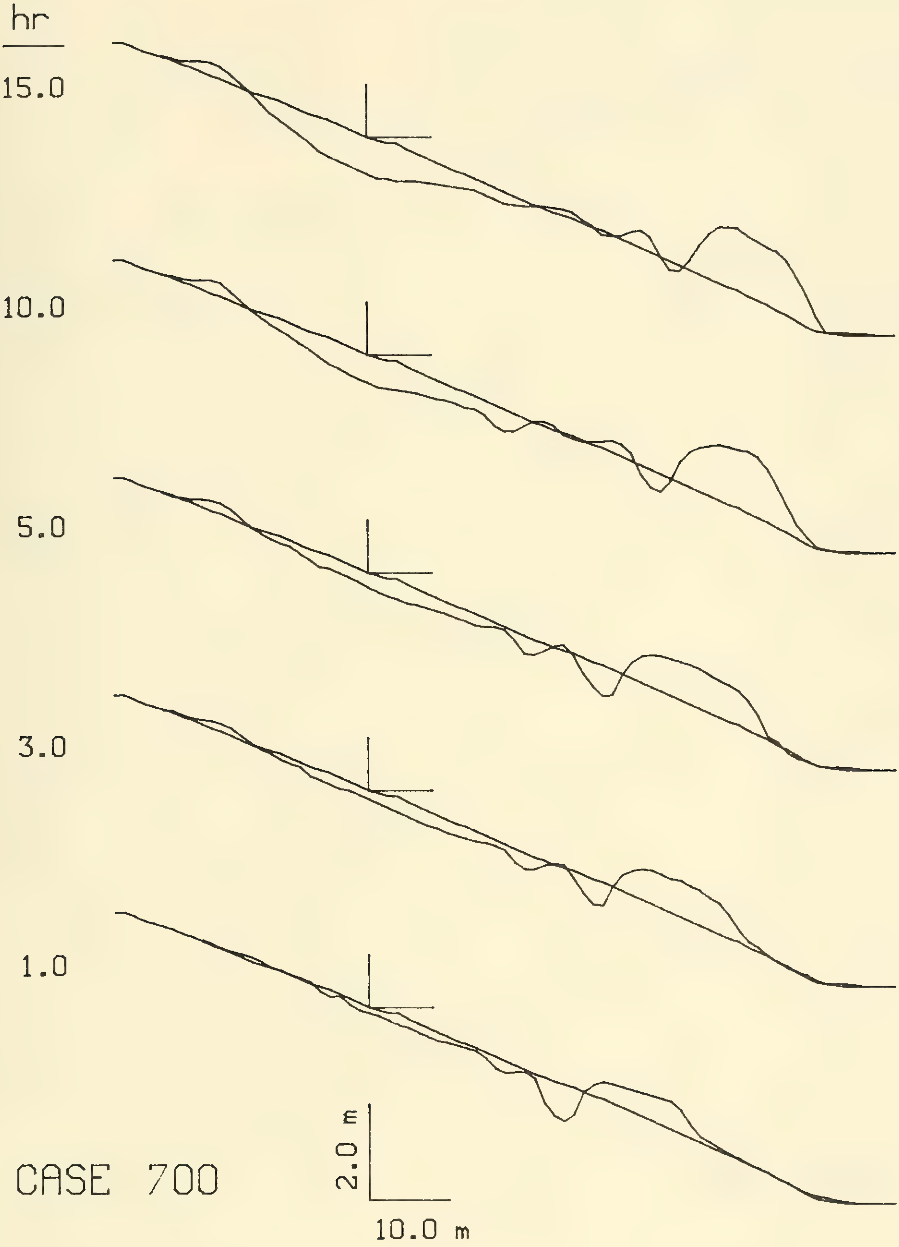

hr
110.0
100.0
90.0
80.0
70.0
CASE 510
2.0 m
10.0 m

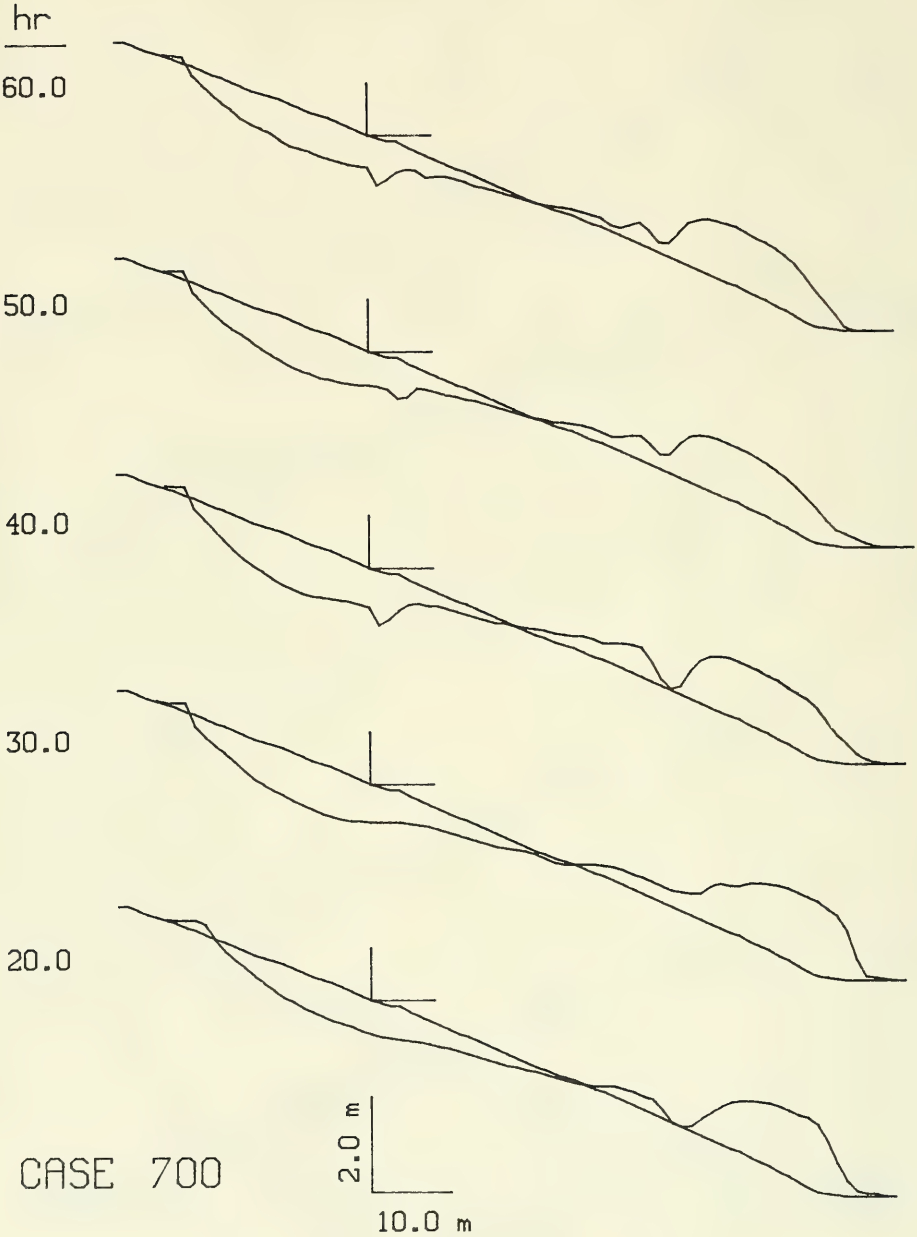

hr
120.0
CASE 510
2.0 m
10.0 m

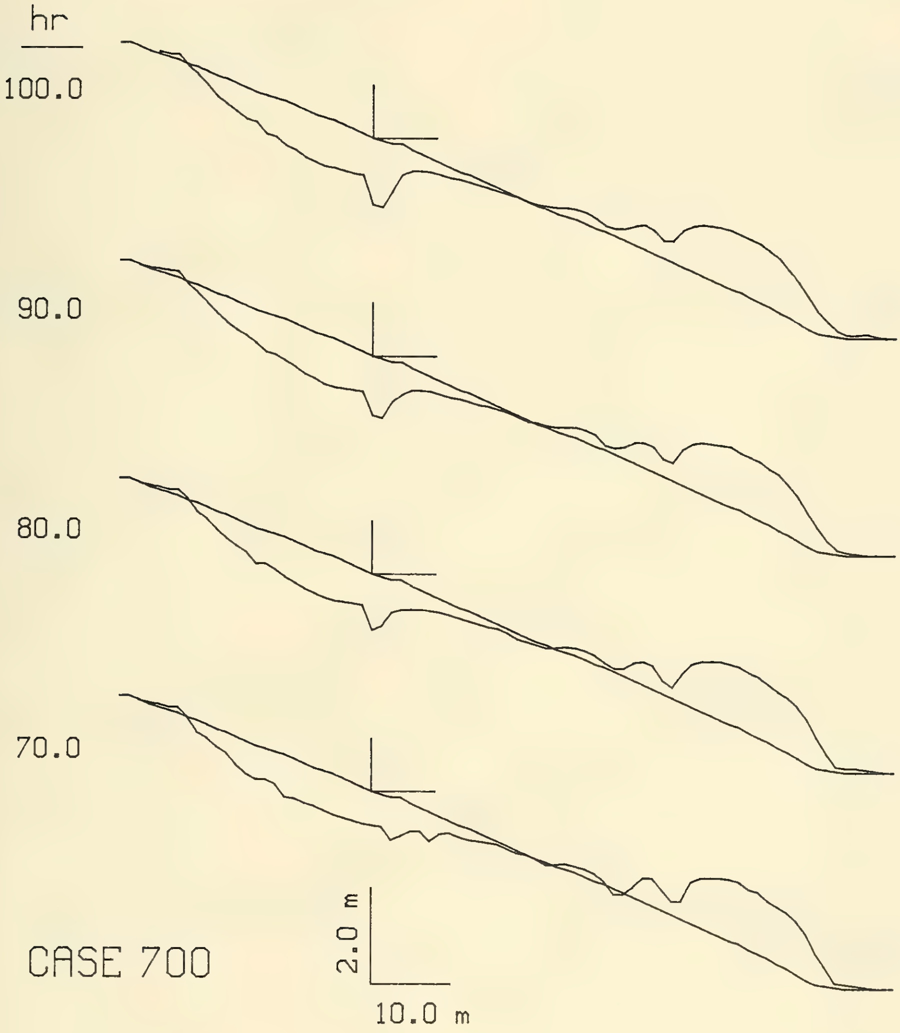

hr
15.0
10.0
5.0
3.0
1.0
CASE 600
2.0 m
10.0 m

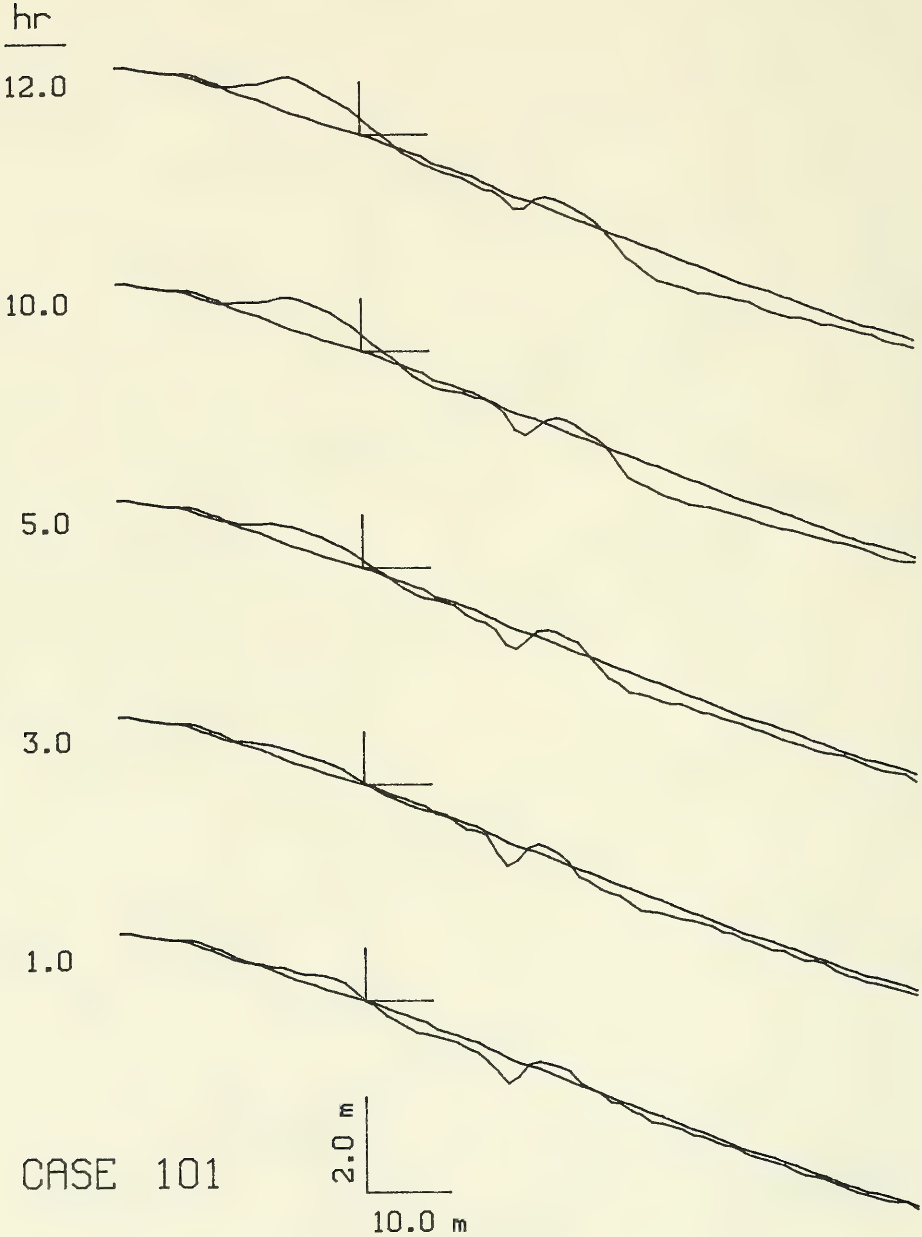

hr
60.0
40.0
30.0
20.0
CASE 600
2.0 m
10.0 m

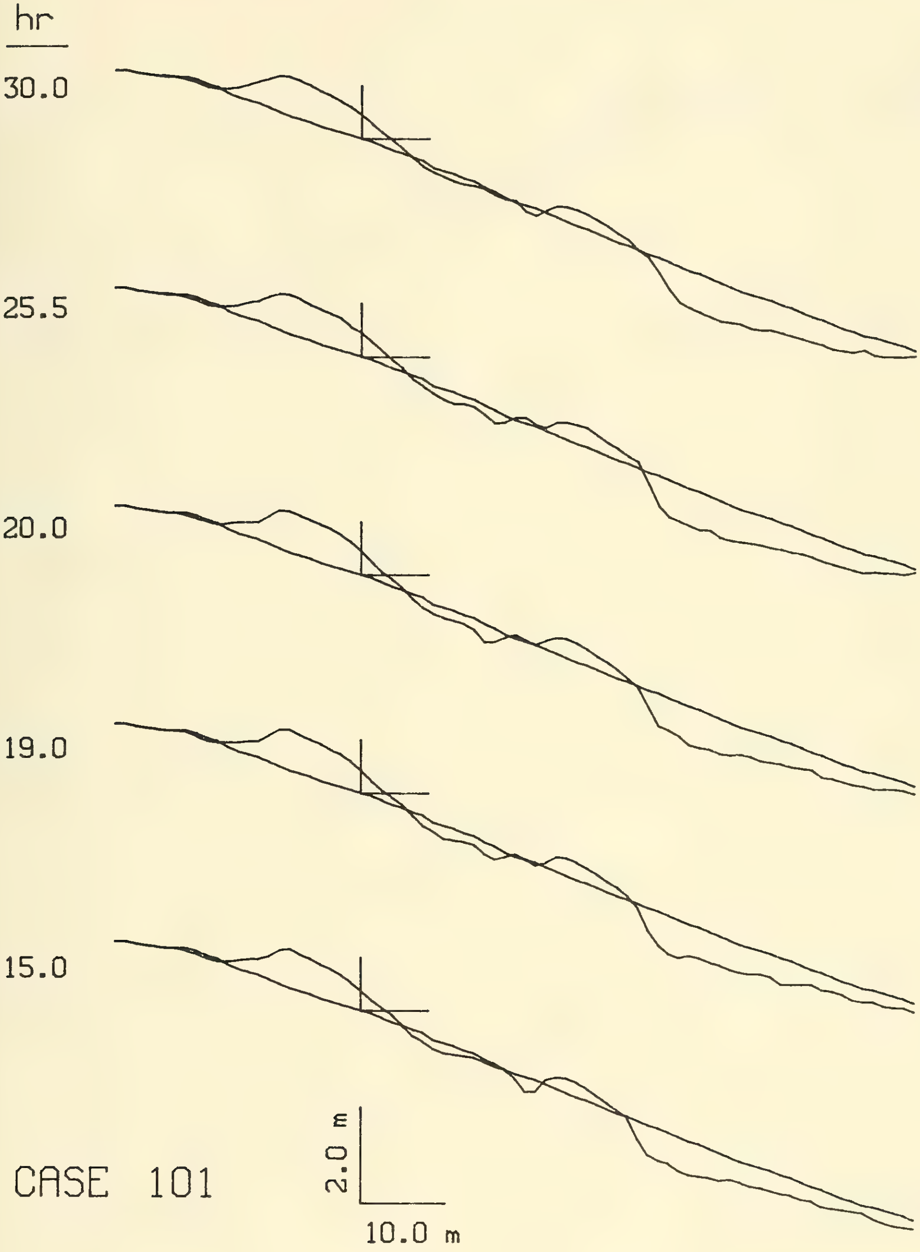

hr
0.8
CASE 610
2.0 m
10.0 m

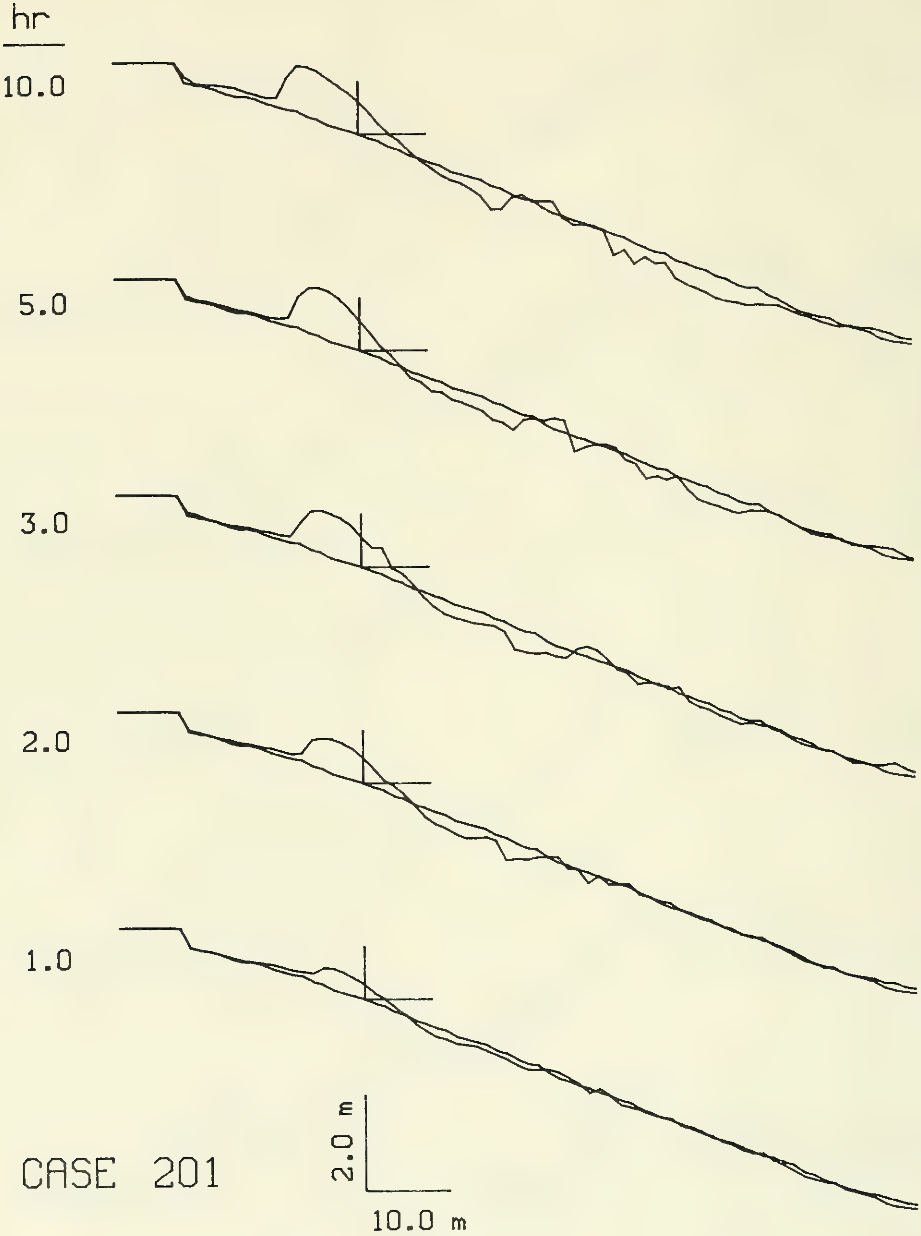

hr
15.0
10.0
5.0
3.0
1.0
CASE 700
2.0 m
10.0 m

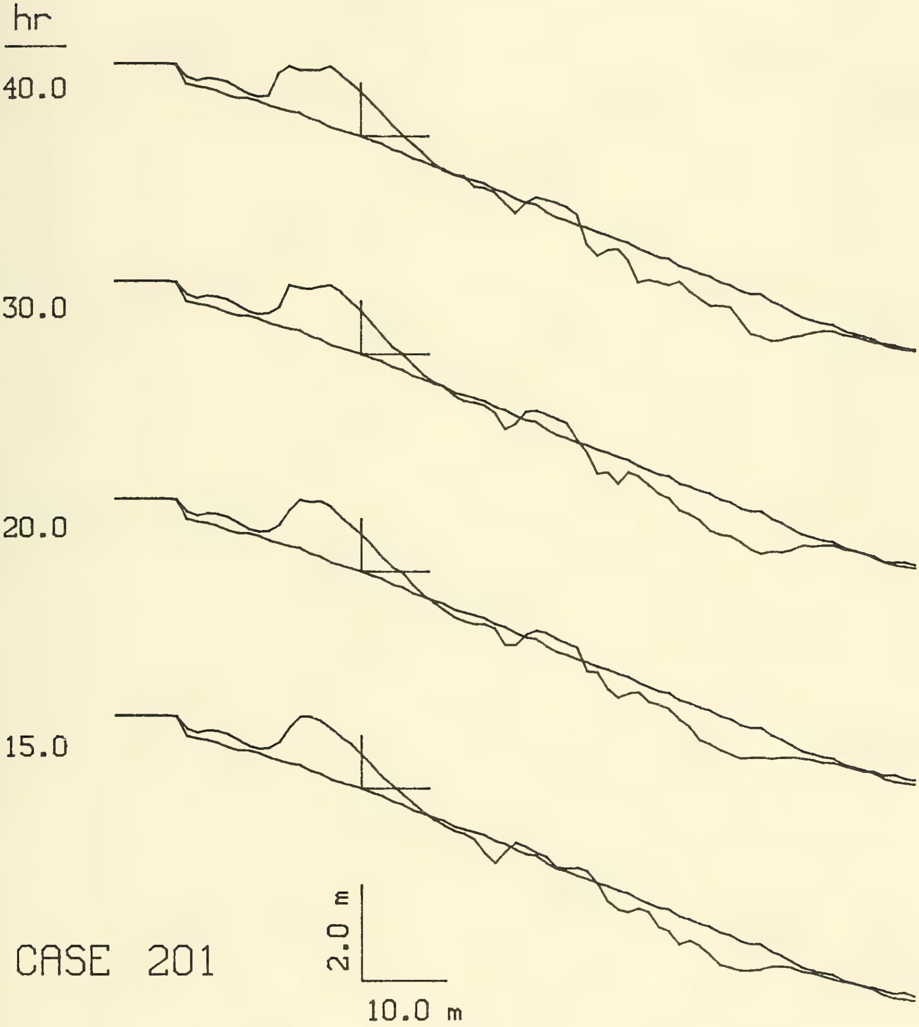

hr
60.0
50.0
40.0
30.0
20.0
CASE 700
2.0 m
10.0 m

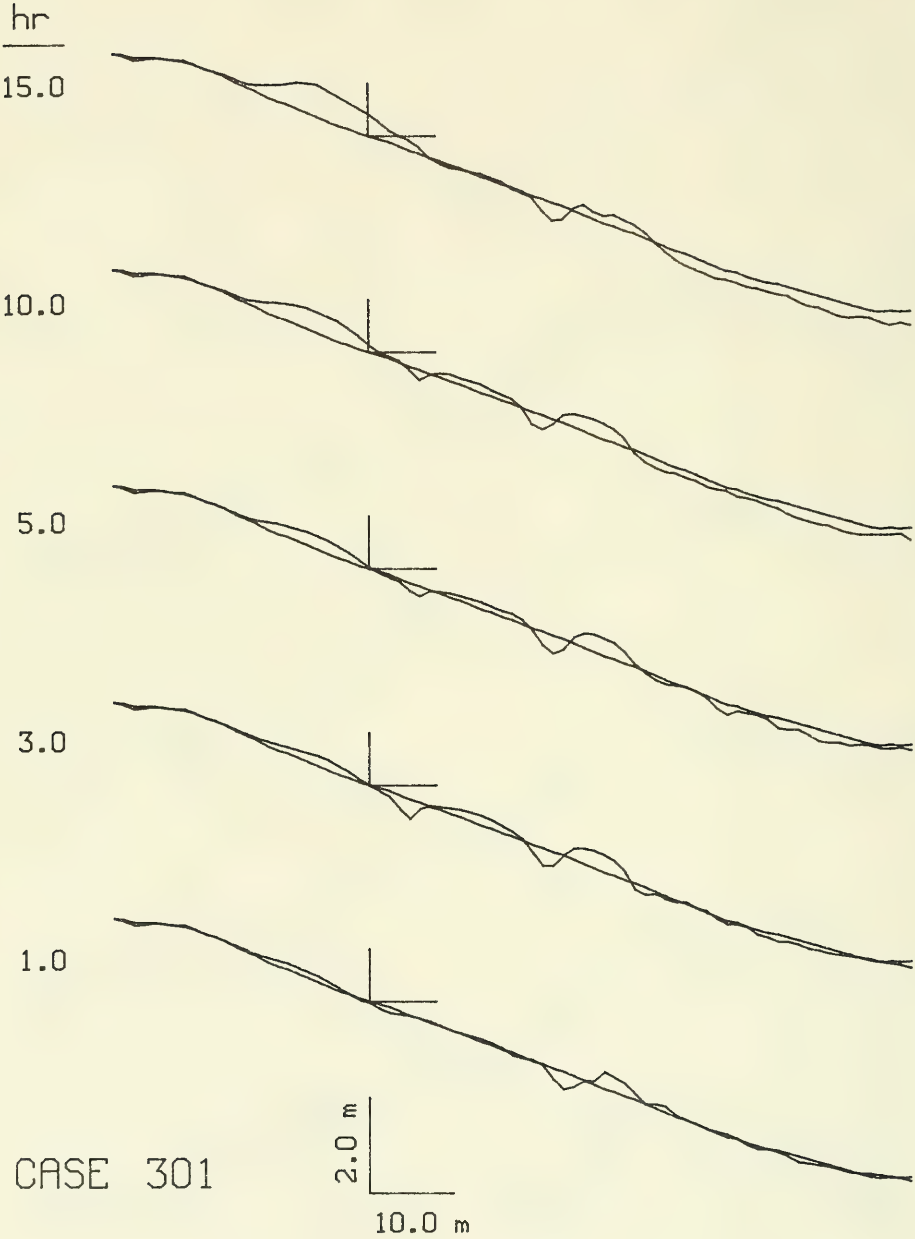

hr
100.0
90.0
80.0
70.0
CASE 700
2.0 m
10.0 m

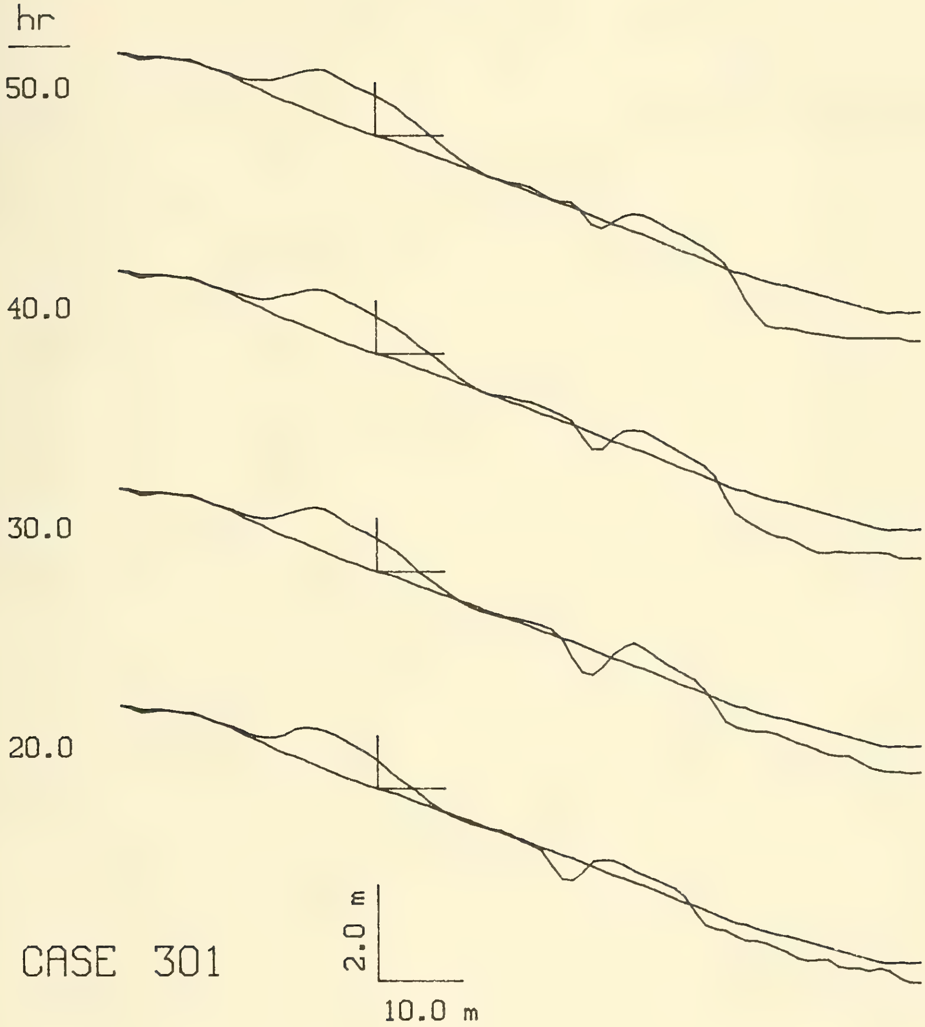

hr
12.0
10.0
5.0
3.0
1.0
CASE 101
2.0 m
10.0 m

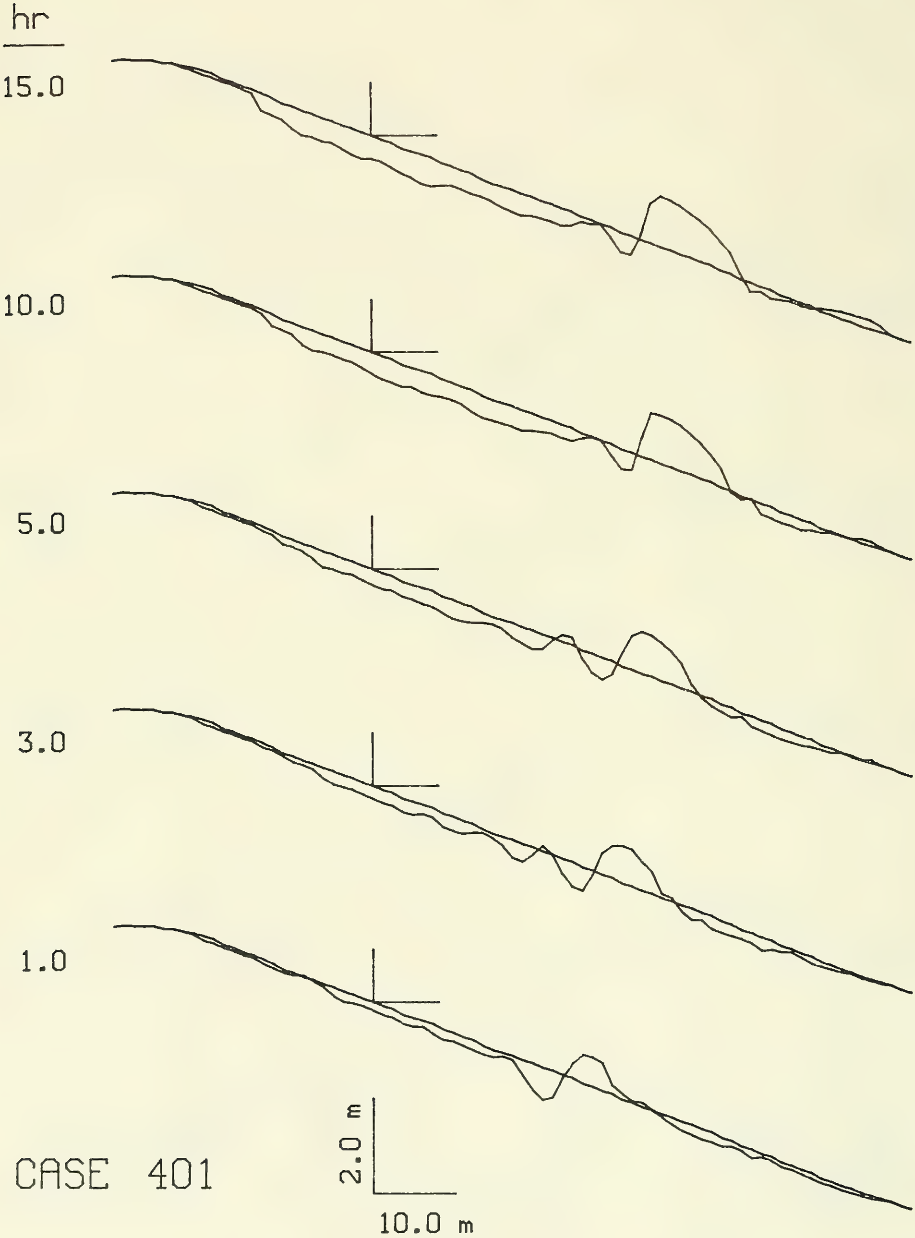

hr
30.0
25.5
20.0
19.0
15.0
CASE 101
2.0 m
10.0 m

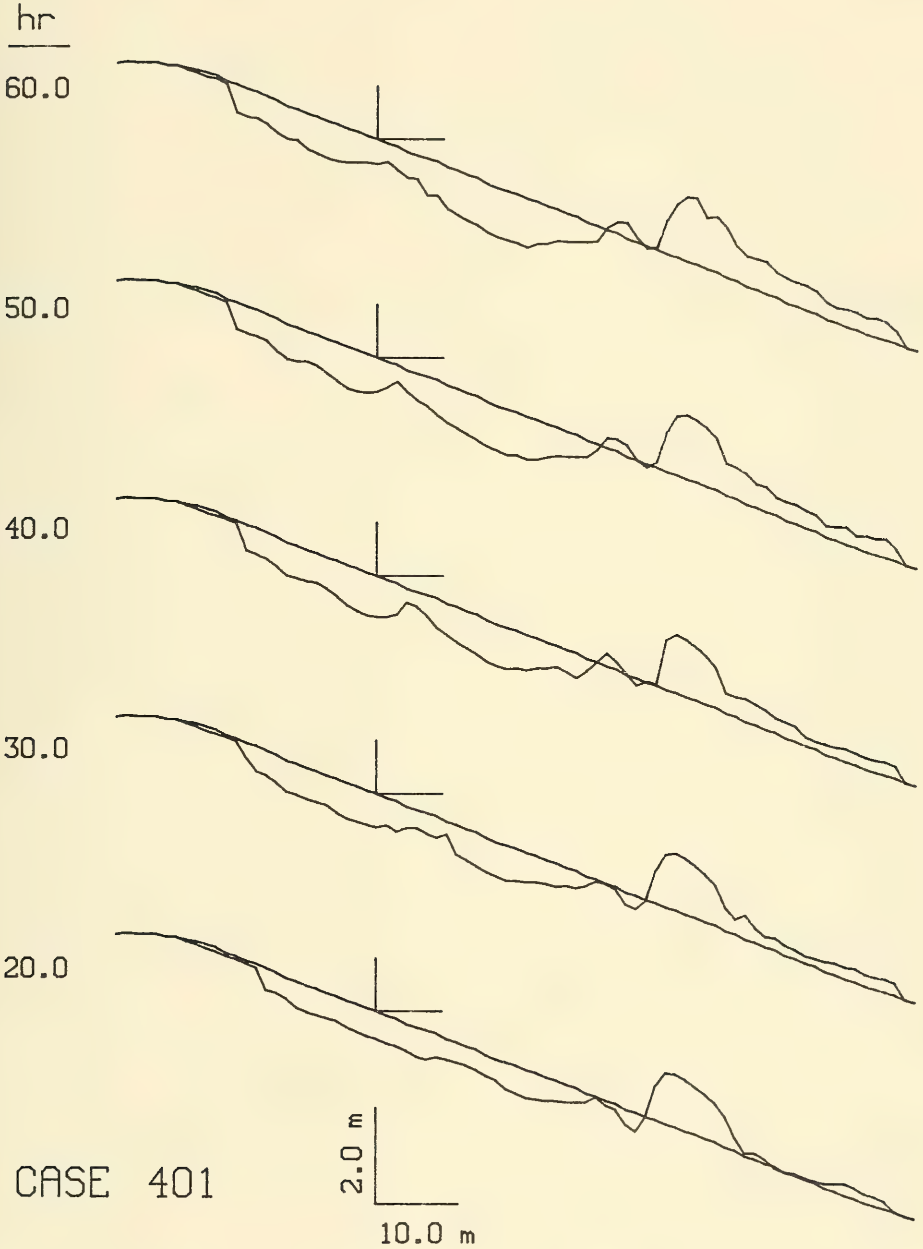

hr
10.0
5.0
3.0
2.0
1.0
CASE 201
2.0 m
10.0 m

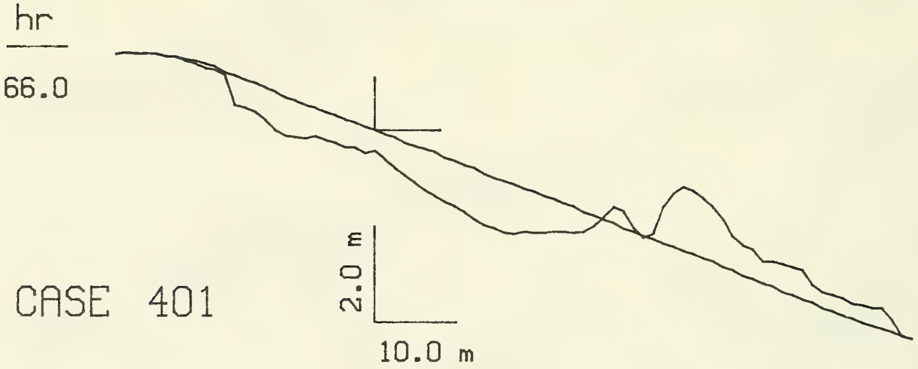

hr
40.0
30.0
20.0
15.0
CASE 201
2.0 m
10.0 m

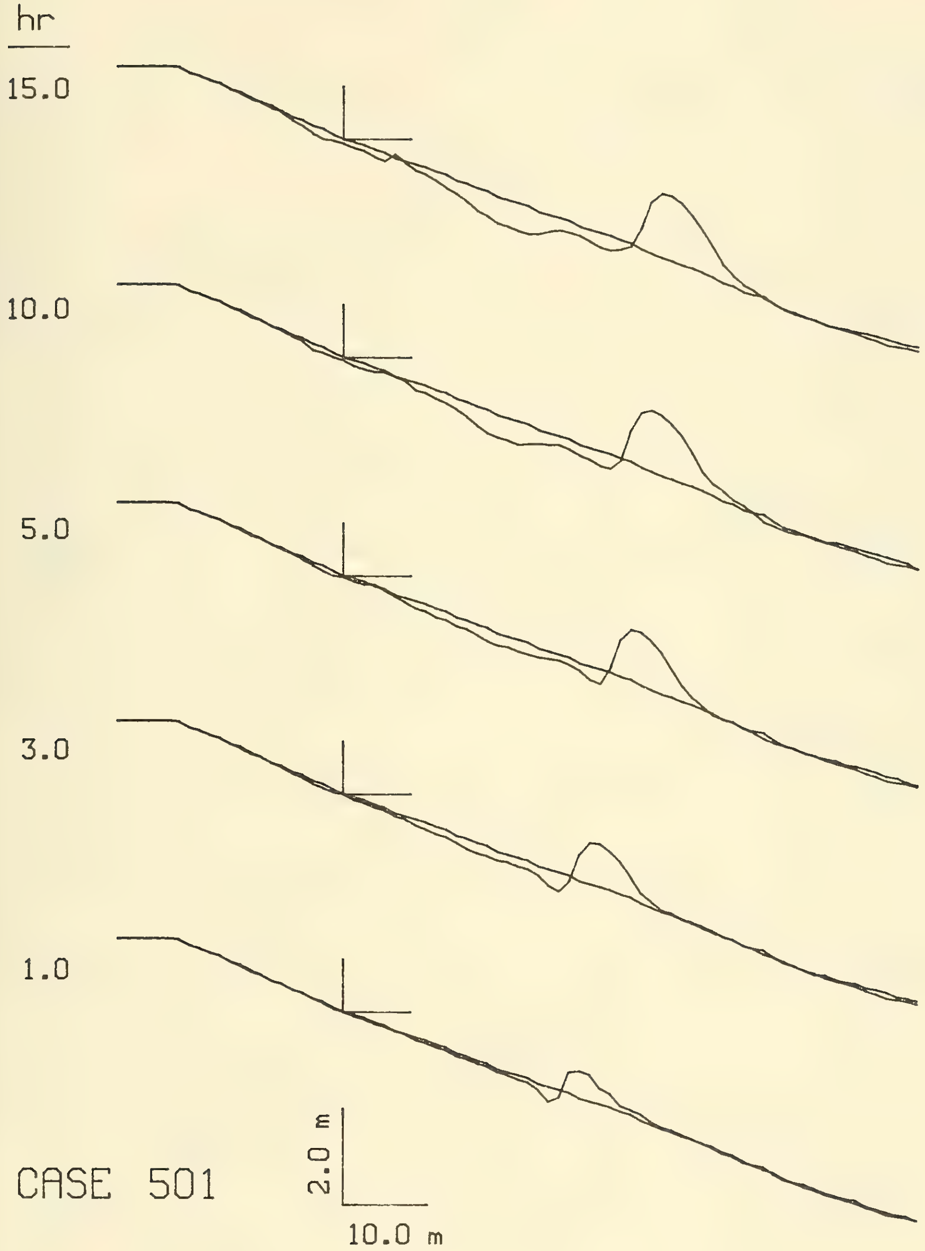

hr
15.0
10.0
5.0
3.0
1.0
CASE 301
2.0 m
10.0 m

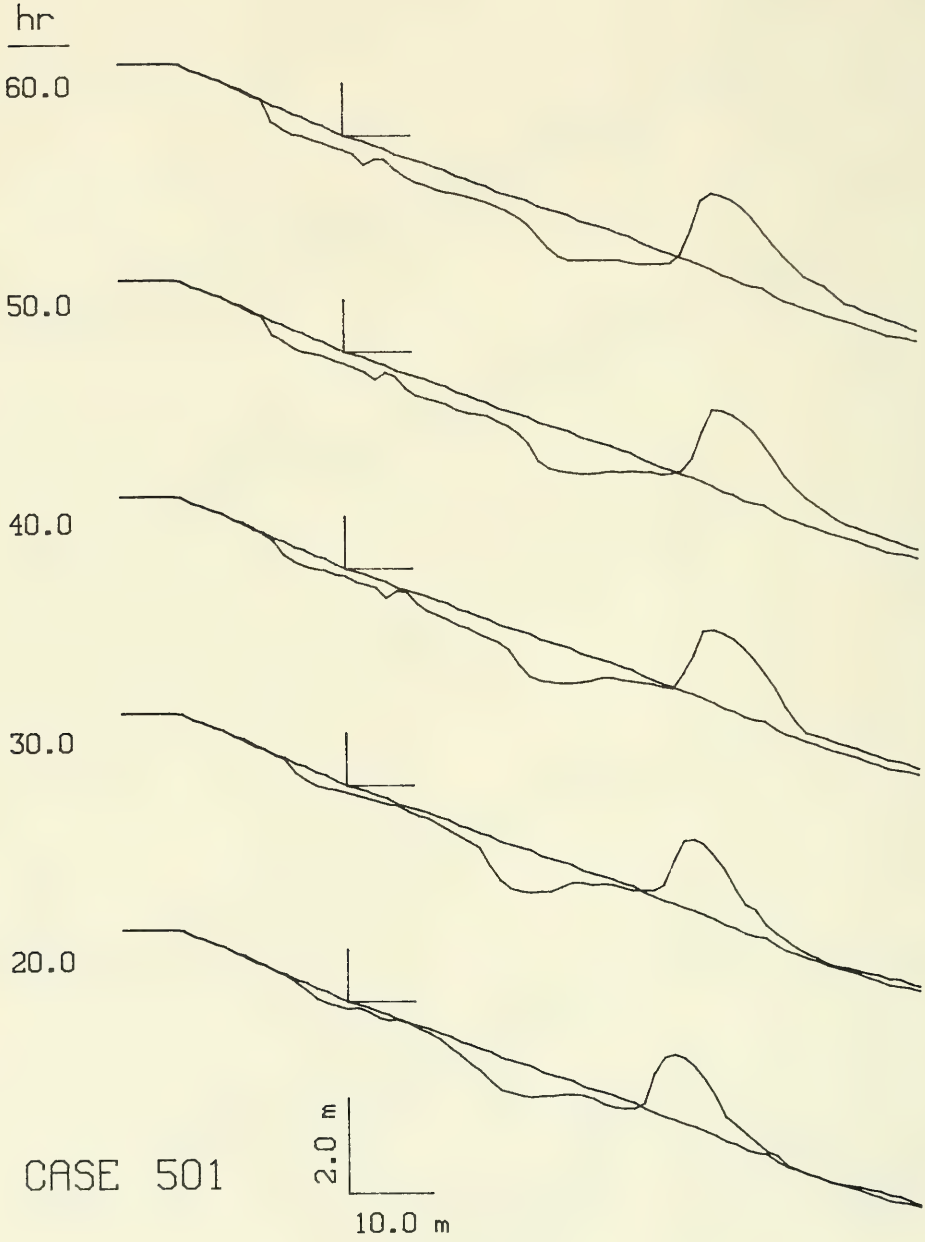

hr
50.0
40.0
30.0
20.0
CASE 301
2.0 m
10.0 m

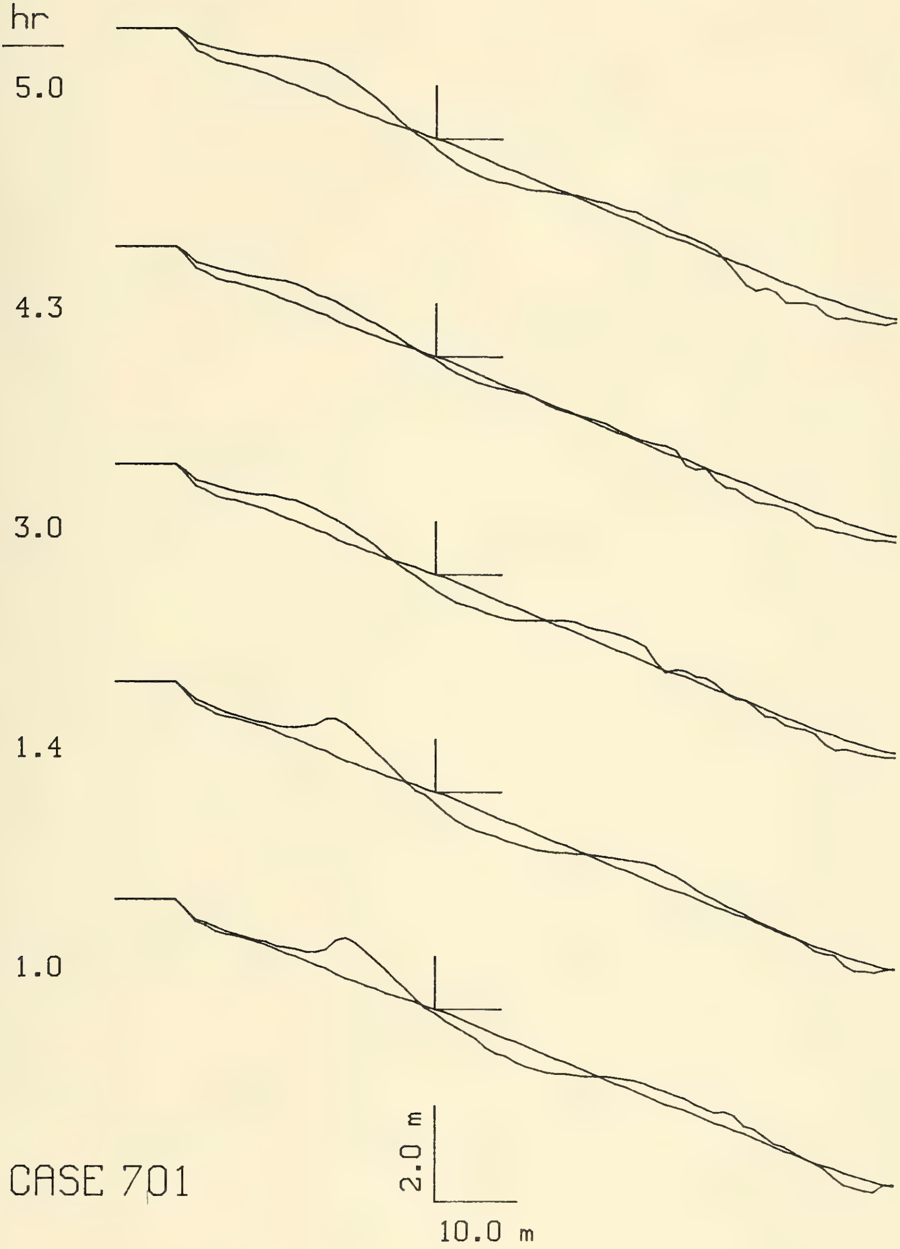

hr
15.0
10.0
5.0
3.0
1.0
CASE 401
2.0 m
10.0 m

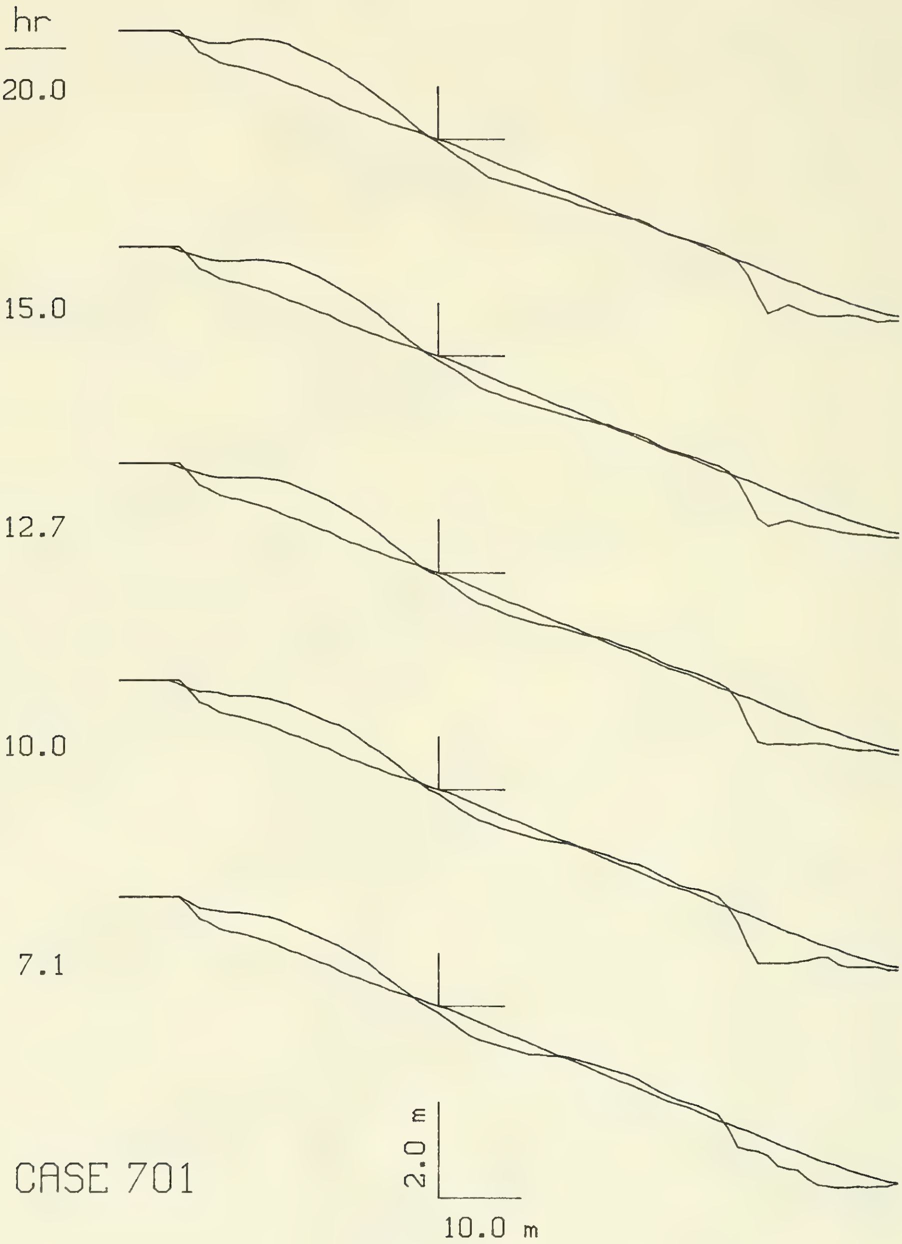

hr
60.0
50.0
40.0
30.0
20.0
CASE 401
2.0 m
10.0 m

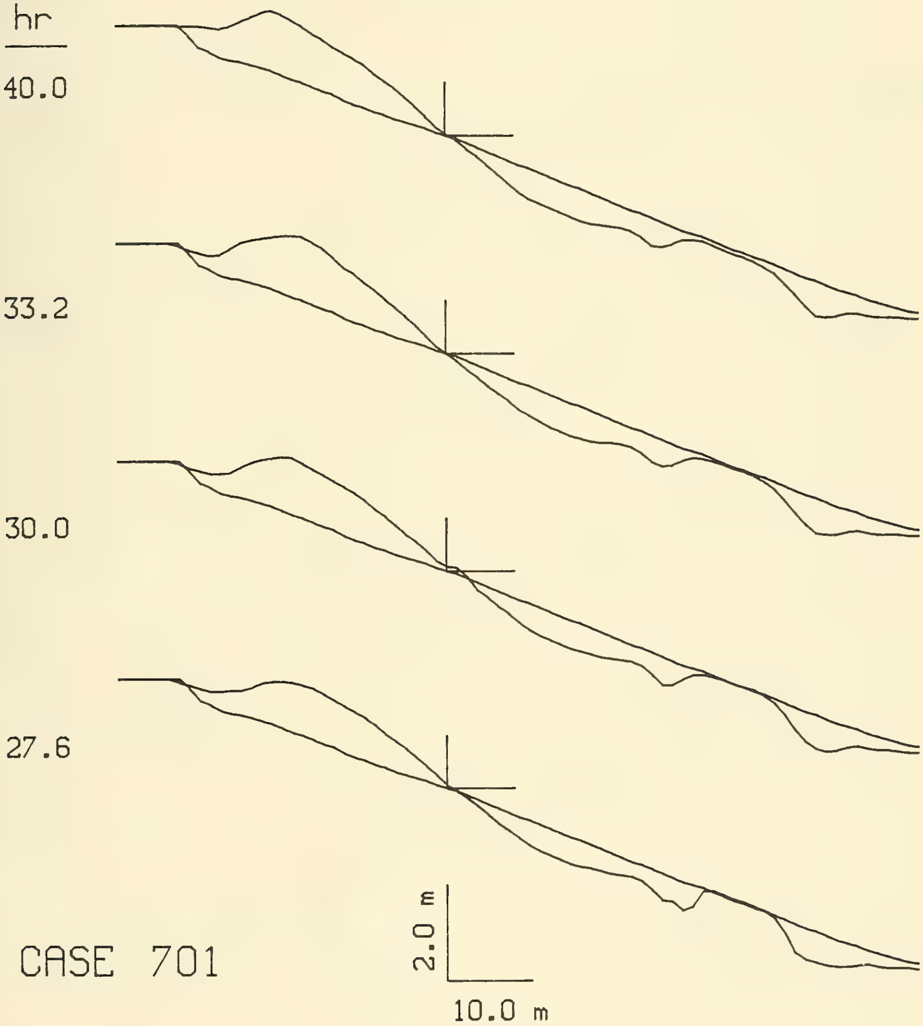

hr
66.0
CASE 401
2.0 m
10.0 m


hr
15.0
10.0
5.0
3.0
1.0
CASE 501
2.0 m
10.0 m

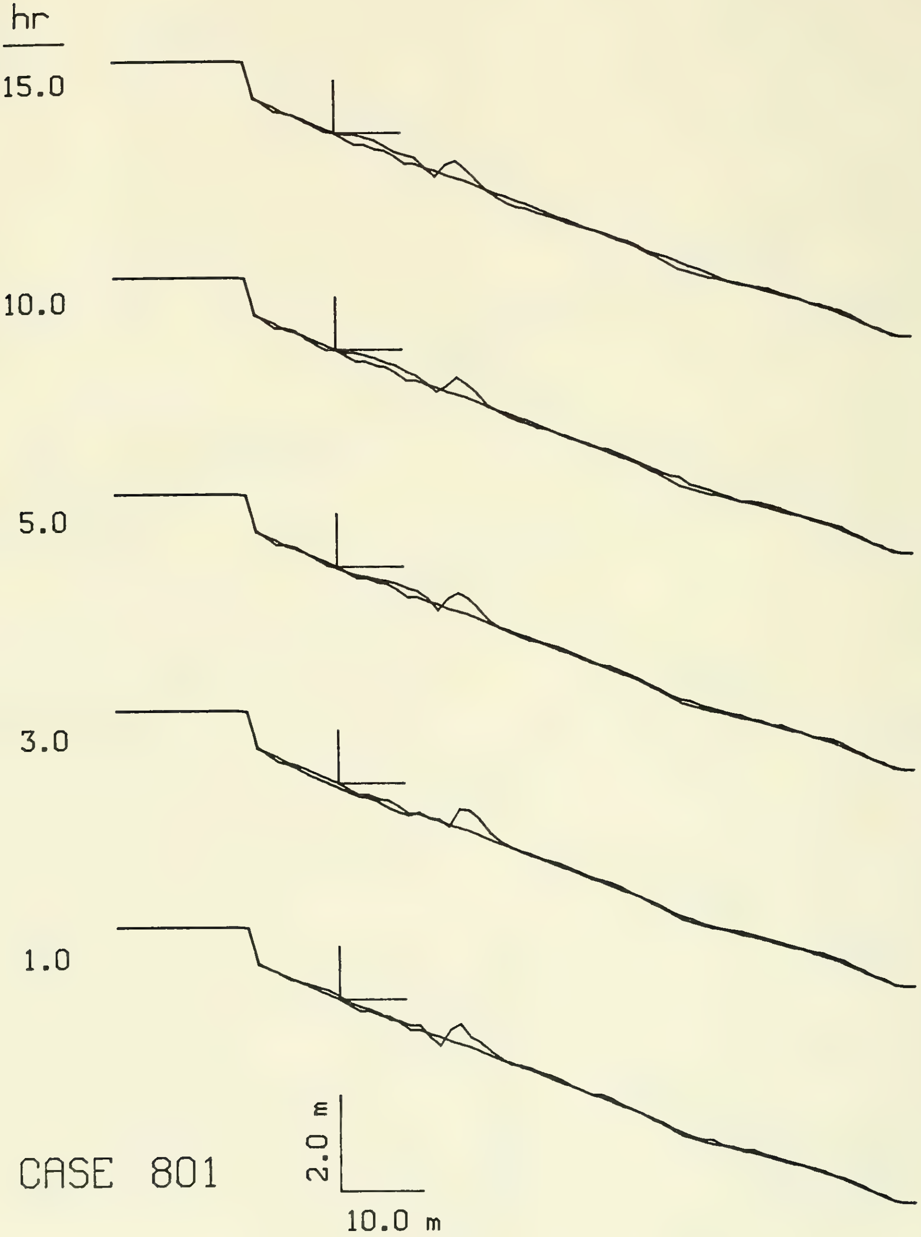

hr
60.0
50.0
40.0
30.0
20.0
CASE 501
2.0 m
10.0 m

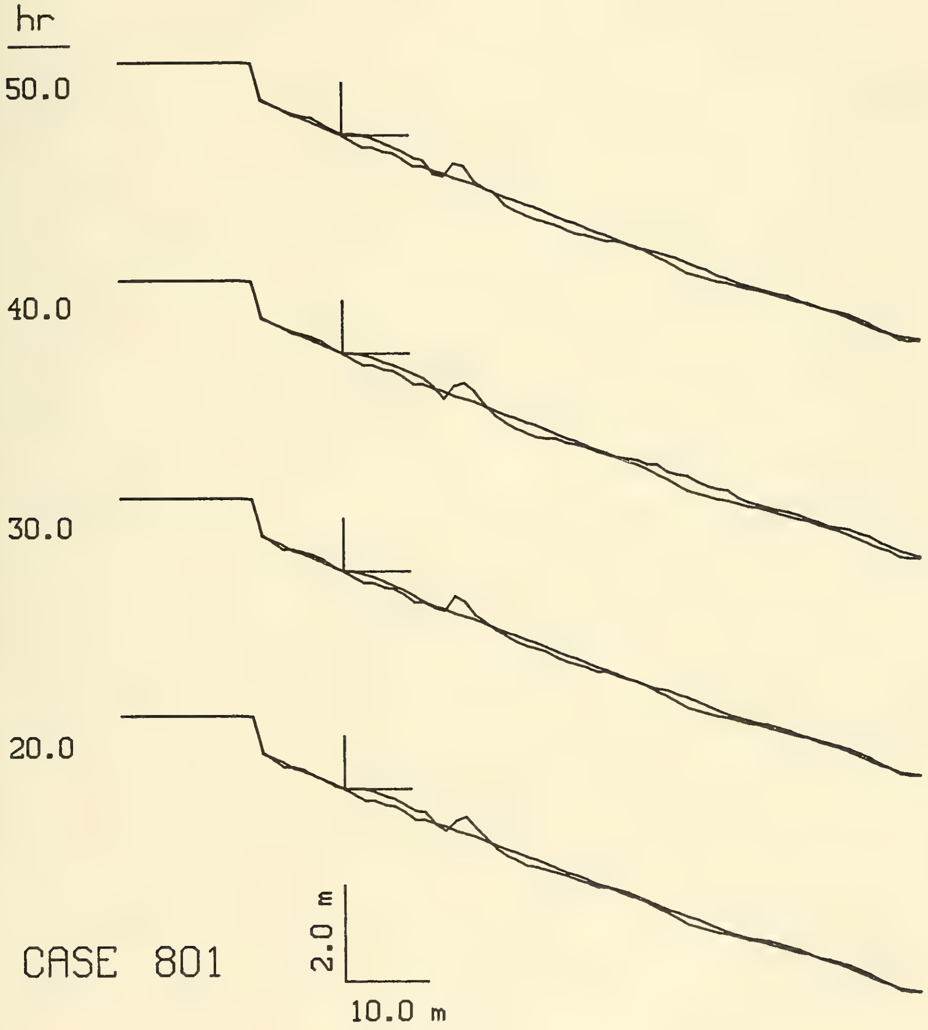

hr
5.0
4.3
3.0
1.4
1.0
CASE 701
2.0 m
10.0 m

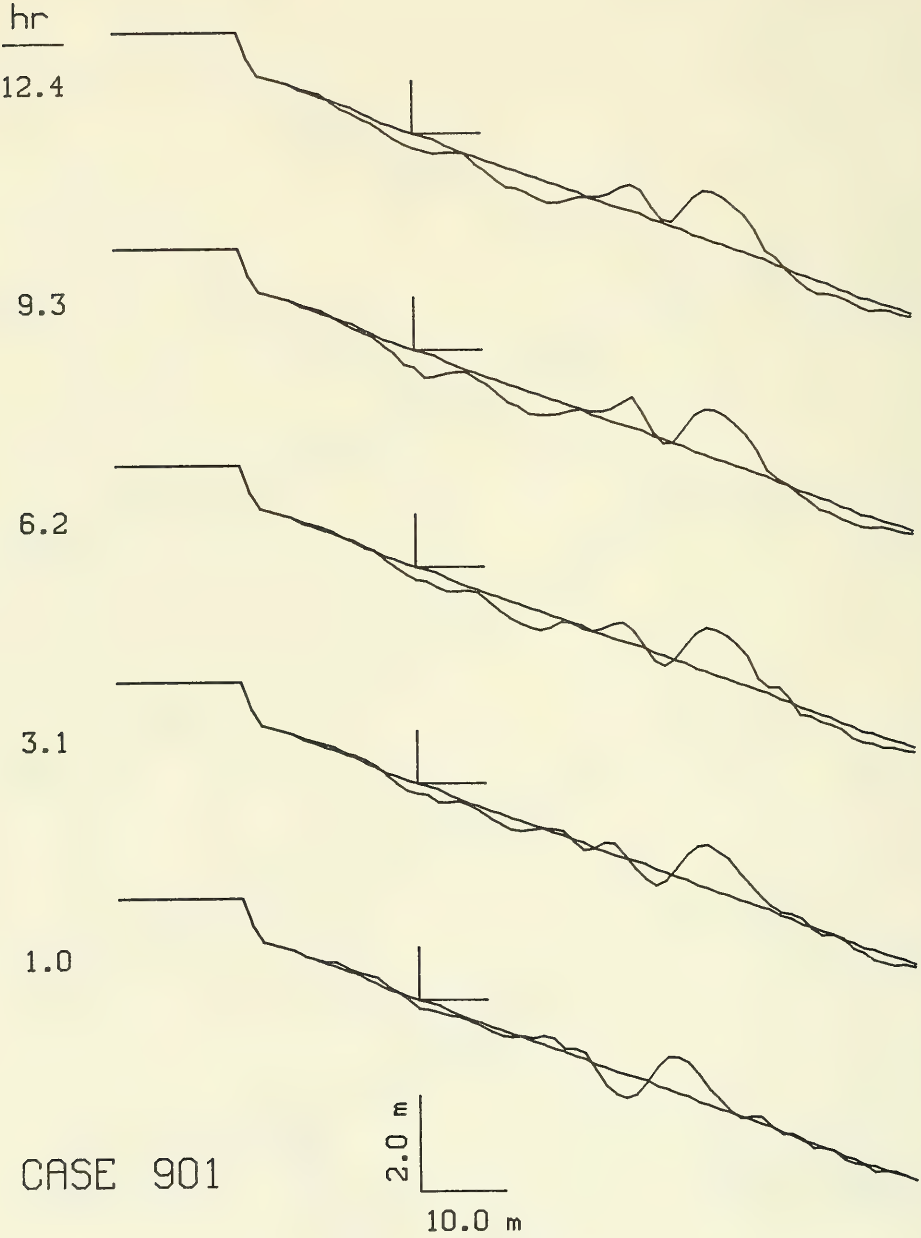

hr
20.0
15.0
12.7
10.0
7.1
CASE 701
2.0 m
10.0 m



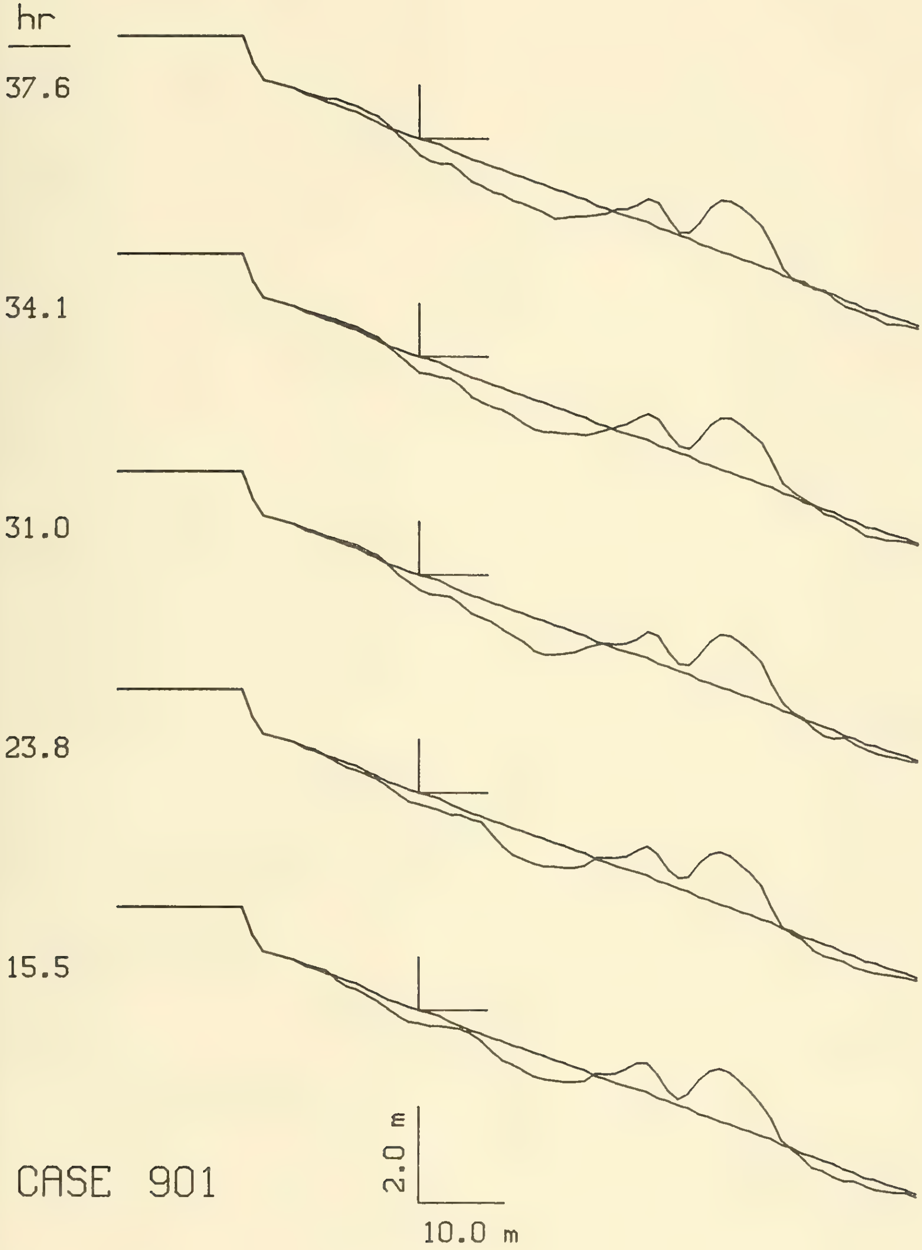
CASE 701

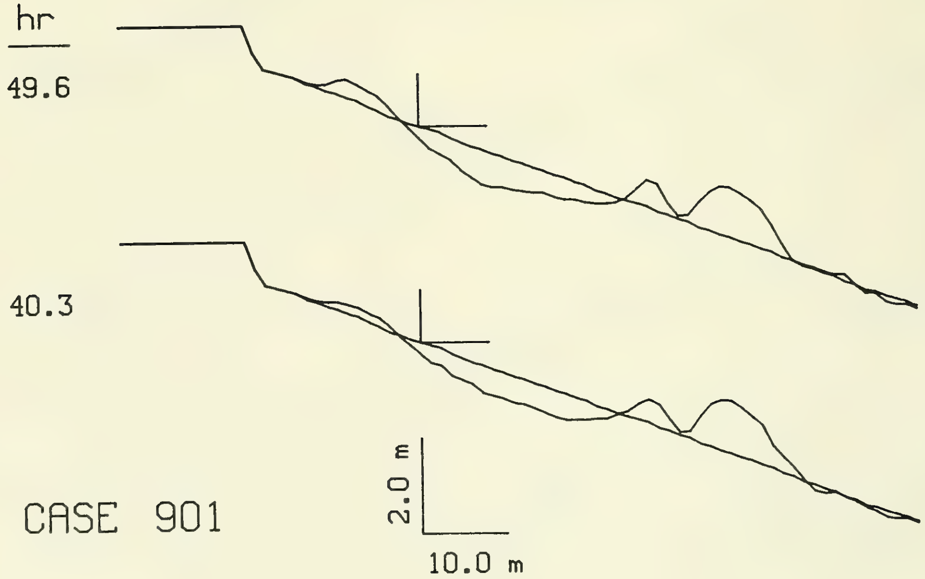

hr
15.0
10.0
5.0
3.0
1.0
CASE 801
2.0 m
10.0 m

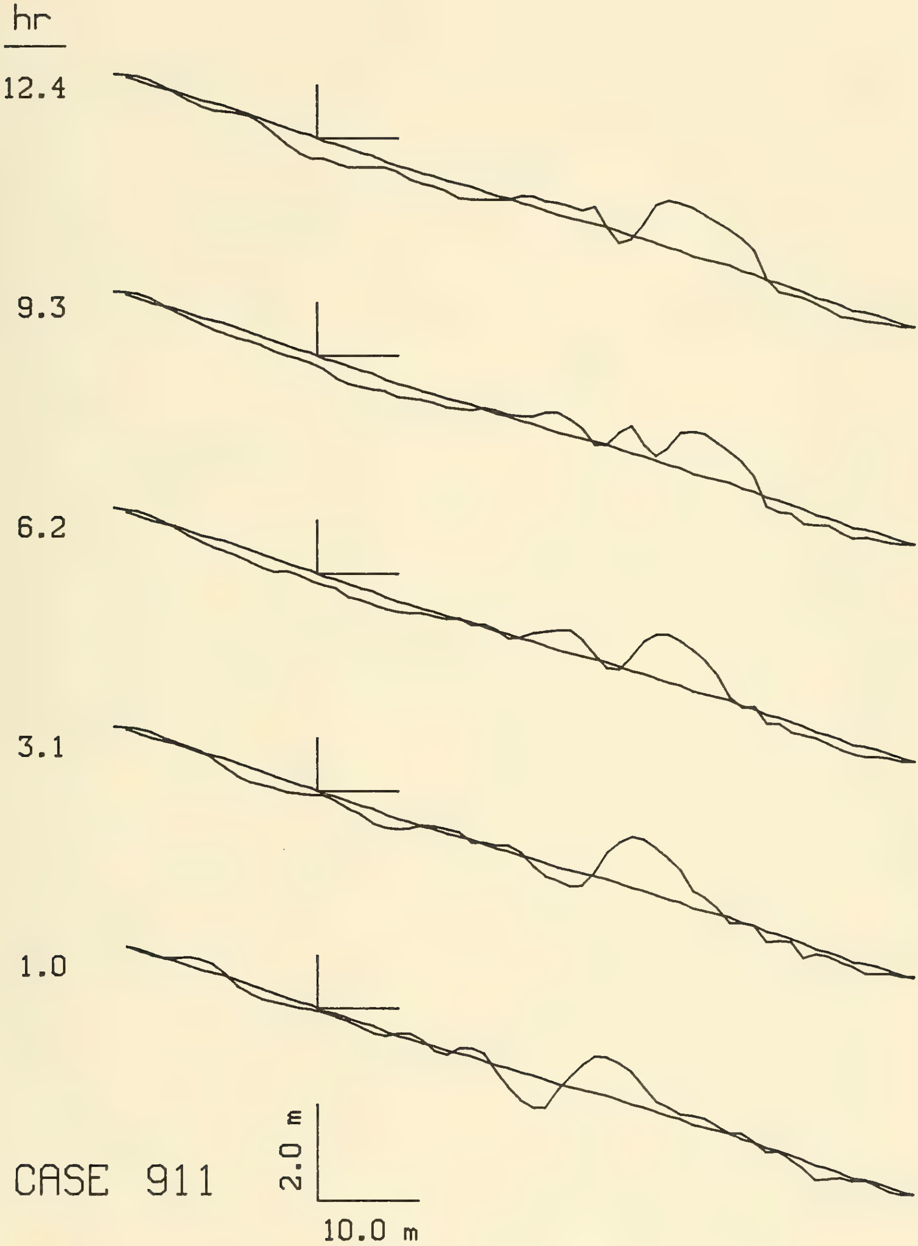

hr
50.0
40.0
30.0
20.0
CASE 801
2.0 m
10.0 m

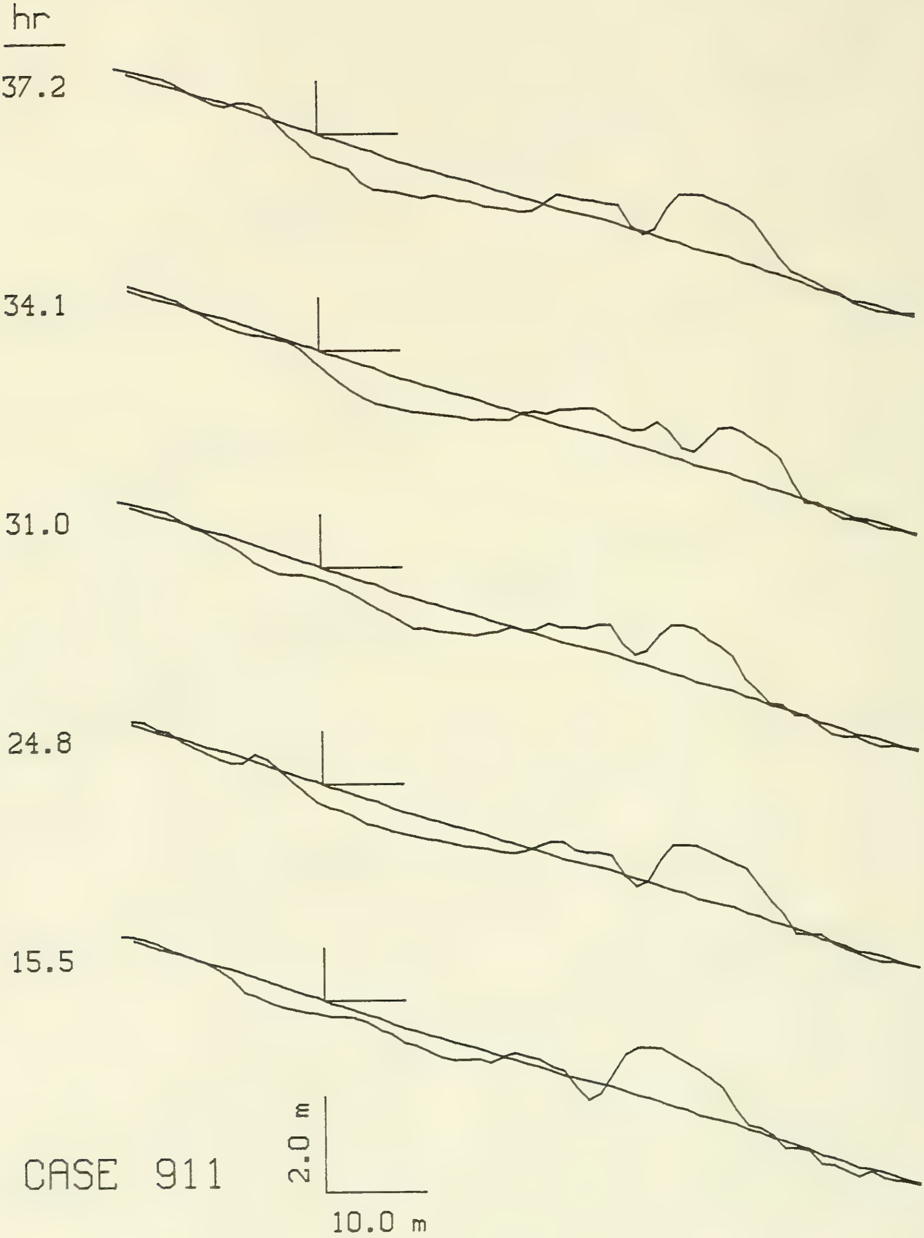


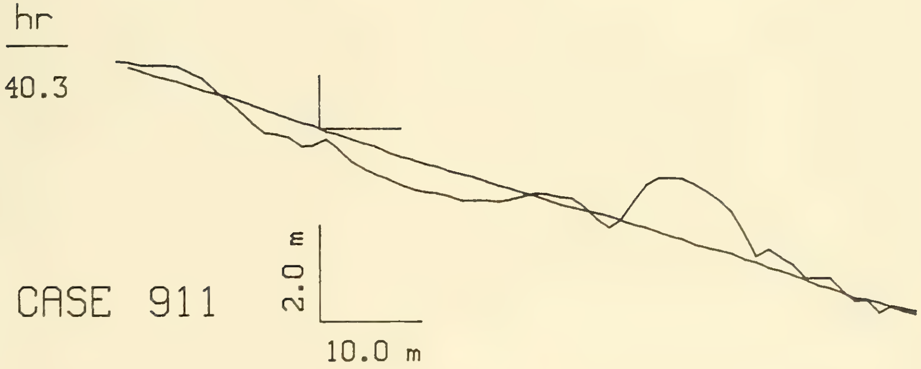
CASE 901


hr
37.6
34.1
31.0
23.8
15.5
CASE 901
2.0 m
10.0 m


hr
49.6
40.3
CASE 901
2.0 m
10.0 m


hr
12.4
9.3
6.2
3.1
1.0
CASE 911
2.0 m
10.0 m


hr
37.2
34.1
31.0
24.8
15.5
CASE 911
2.0 m
10.0 m


hr
40.3
CASE 911
2.0 m
10.0 m

APPENDIX C: BEACH PROFILE DATA

1. This appendix gives a listing of profile survey data from the LWT experiments conducted during 1956-1957 and 1962. If the profile was surveyed along three lines, in the listing the result was represented by values from the middle survey for the 0.22-mm sand experiments and by an average value for the 0.44-mm sand experiments. Plots of these data are given in Appendix B. Distance-elevation pairs are given in feet.

2. The format of the data is described in Table C1.

Table C1

Format of Profile Survey Data

Position	Description of Entry	Format
	First Card in Each Record	
1-5	Case number	A5
6-9	Profile survey ordinal number	I4
10	Card number	A1
11-16	Approximate date of run (year, month, day)	I6
17-21	Time of survey in decimal form (e.g., 2550=25.5 hr)	F5.2
22-24	Number of coordinate pairs in the survey	I3
25-29	Minimum elevation in the survey (e.g., 150=15 ft)	F5.1
30-40	Blank	A11
41-80	First four distance-elevation pairs (e.g., [-72,49]=[-72.0 ft, 4.9 ft]	4(F5.0,F5.1)
	Continuation Cards	
1-10	Same as first card	
11-80	Seven distance-elevation pairs	7(F5.0,F5.1)

3. The profile survey data are shown in Tables C2 and C3.

Table C2

Profile Survey Data: 0.22-mm Sand

CASE 100

```
CE100   11560315    0 77 -150             -72   49  -68   46  -64   45  -60   43
CE100   12  -56   40  -52   38  -48   34  -44   31  -40   30  -36   28  -32   25
CE100   13  -28   21  -24   19  -20   16  -16   13  -12   10   -8    8   -4    4
CE100   14    0    0    4   -4    8   -8   12  -10   16  -13   20  -16   24  -17
CE100   15   28  -21   32  -23   36  -25   40  -28   44  -30   48  -33   52  -35
CE100   16   56  -37   60  -40   64  -42   68  -44   72  -47   76  -49   80  -52
CE100   17   84  -56   88  -59   92  -63   96  -66  100  -70  104  -72  108  -73
CE100   18  112  -77  116  -80  120  -82  124  -86  128  -90  132  -93  136  -95
CE100   19  140  -98  144 -102  148 -105  152 -109  156 -112  160 -115  164 -118
CE100   1A  168 -121  172 -125  176 -129  180 -131  184 -133  188 -135  192 -137
CE100   1B  196 -139  200 -141  204 -143  208 -145  212 -146  216 -147  220 -148
CE100   1C  224 -149  228 -149  232 -150

CE100   21560315  100 79 -150             -72   49  -68   46  -64   45  -60   43
CE100   22  -56   40  -52   40  -48   38  -44   36  -40   30  -36   22  -32   19
CE100   23  -28    9  -24    8  -20    5  -16    1  -12   -1   -8   -3   -4   -5
CE100   24    0   -9    4  -11    8  -13   12  -15   16  -16   20  -18   24  -20
CE100   25   28  -21   32  -23   36  -23   40  -24   44  -25   48  -26   52  -28
CE100   26   56  -29   60  -32   64  -46   68  -54   72  -61   76  -58   80  -48
CE100   27   84  -39   88  -37   92  -39   96  -43  100  -48  104  -53  108  -59
CE100   28  112  -65  116  -70  120  -76  124  -82  128  -85  132  -91  136  -93
CE100   29  140  -97  144 -101  148 -103  152 -107  156 -112  160 -113  164 -118
CE100   2A  168 -121  172 -123  176 -128  180 -129  184 -131  188 -134  192 -137
CE100   2B  196 -141  200 -141  204 -143  208 -144  212 -145  216 -146  220 -146
CE100   2C  224 -146  228 -147  232 -148  236 -148  240 -150

CE100   31560315  500 78 -150             -72   49  -68   46  -64   46  -60   45
CE100   32  -56   39  -52   31  -48   21  -44   16  -40   12  -36    8  -32    5
CE100   33  -28    0  -24   -2  -20   -5  -16   -9  -12  -11   -8  -13   -4  -14
CE100   34    0  -16    4  -17    8  -19   12  -19   16  -21   20  -23   24  -25
CE100   35   28  -28   32  -31   36  -33   40  -36   44  -37   48  -36   52  -33
CE100   36   56  -32   60  -35   64  -42   68  -47   72  -48   76  -46   80  -47
CE100   37   84  -54   88  -60   92  -62   96  -59  100  -48  104  -42  108  -43
CE100   38  112  -46  116  -48  120  -51  124  -53  128  -56  132  -60  136  -63
CE100   39  140  -69  144  -75  148  -85  152  -98  156 -104  160 -111  164 -116
CE100   3A  168 -120  172 -123  176 -126  180 -130  184 -133  188 -134  192 -137
CE100   3B  196 -139  200 -141  204 -143  208 -145  212 -144  216 -146  220 -146
CE100   3C  224 -148  228 -148  232 -149  236 -150
```

(Continued)

(Sheet 1 of 31)

Table C2 (Continued)

```
CE100   41560315 1200 76 -150           -72   37  -68   31  -64   25  -60   19
CE100   42  -56   15  -52   10  -48    6  -44    2  -40   -2  -36   -5  -32   -7
CE100   43  -28   -9  -24  -11  -20  -11  -16  -12  -12  -13   -8  -15   -4  -17
CE100   44    0  -19    4  -21    8  -22   12  -23   16  -24   20  -26   24  -28
CE100   45   28  -30   32  -31   36  -32   40  -34   44  -36   48  -37   52  -37
CE100   46   56  -37   60  -38   64  -40   68  -39   72  -38   76  -39   80  -42
CE100   47   84  -52   88  -59   92  -63   96  -63  100  -53  104  -54  108  -52
CE100   48  112  -44  116  -40  120  -41  124  -43  128  -46  132  -50  136  -52
CE100   49  140  -54  144  -57  148  -62  152  -68  156  -80  160  -95  164 -105
CE100   4A  168 -113  172 -125  176 -128  180 -131  184 -133  188 -135  192 -137
CE100   4B  196 -138  200 -140  204 -142  208 -144  212 -146  216 -147  220 -149
CE100   4C  224 -149  228 -150

CE100   51560315 1900 76 -150           -72   26  -68   19  -64   12  -60    6
CE100   52  -56   -1  -52   -4  -48   -6  -44   -8  -40   -9  -36   -9  -32  -10
CE100   53  -28  -11  -24  -12  -20  -14  -16  -16  -12  -15   -8  -16   -4  -18
CE100   54    0  -19    4  -21    8  -23   12  -25   16  -24   20  -23   24  -23
CE100   55   28  -24   32  -27   36  -28   40  -30   44  -34   48  -42   52  -43
CE100   56   56  -41   60  -36   64  -34   68  -34   72  -34   76  -36   80  -44
CE100   57   84  -50   88  -47   92  -43   96  -41  100  -48  104  -56  108  -57
CE100   58  112  -46  116  -39  120  -41  124  -43  128  -46  132  -51  136  -53
CE100   59  140  -58  144  -62  148  -66  152  -71  156  -74  160  -80  164  -87
CE100   5A  168  -96  172 -113  176 -123  180 -123  184 -130  188 -136  192 -138
CE100   5B  196 -139  200 -142  204 -143  208 -145  212 -147  216 -149  220 -149
CE100   5C  224 -149  228 -150

CE100   61560315 2550 77 -150           -72   16  -68   10  -64    5  -60    0
CE100   62  -56   -2  -52   -4  -48   -6  -44   -8  -40  -10  -36  -13  -32  -15
CE100   63  -28  -11  -24  -13  -20  -14  -16  -18  -12  -19   -8  -19   -4  -20
CE100   64    0  -20    4  -21    8  -23   12  -26   16  -27   20  -25   24  -25
CE100   65   28  -26   32  -26   36  -25   40  -26   44  -29   48  -33   52  -36
CE100   66   56  -38   60  -38   64  -37   68  -38   72  -43   76  -43   80  -37
CE100   67   84  -33   88  -29   92  -31   96  -41  100  -54  104  -63  108  -70
CE100   68  112  -74  116  -68  120  -53  124  -46  128  -46  132  -47  136  -50
CE100   69  140  -54  144  -58  148  -63  152  -68  156  -72  160  -77  164  -81
CE100   6A  168  -91  172 -108  176 -121  180 -121  184 -124  188 -129  192 -133
CE100   6B  196 -138  200 -144  204 -148  208 -149  212 -149  216 -149  220 -149
CE100   6C  224 -149  228 -149  232 -150

CE100   71560315 3000 75 -150           -72   17  -68   10  -64    2  -60   -2
CE100   72  -56   -4  -52   -6  -48   -9  -44  -11  -40  -12  -36  -12  -32  -12
CE100   73  -28  -20  -24  -15  -20  -19  -16  -16  -12  -16   -8  -16   -4  -17
CE100   74    0  -20    4  -22    8  -24   12  -26   16  -30   20  -32   24  -29
CE100   75   28  -26   32  -25   36  -24   40  -23   44  -25   48  -28   52  -32
CE100   76   56  -37   60  -37   64  -35   68  -36   72  -45   76  -43   80  -37
CE100   77   84  -33   88  -30   92  -33   96  -41  100  -56  104  -61  108  -65
CE100   78  112  -60  116  -46  120  -42  124  -42  128  -43  132  -46  136  -53
CE100   79  140  -55  144  -60  148  -64  152  -69  156  -73  160  -78  164  -82
CE100   7A  168  -90  172 -104  176 -118  180 -117  184 -123  188 -128  192 -137
CE100   7B  196 -141  200 -145  204 -147  208 -148  212 -148  216 -149  220 -149
CE100   7C  224 -150
```

(Continued)

(Sheet 2 of 31)

Table C2 (Continued)

CASE 110

```
CE110  11560615    0 75 -150             -72   47  -68   45  -64   42  -60   39
CE110  12  -56   37  -52   34  -48   31  -44   29  -40   26  -36   23  -32   21
CE110  13  -28   18  -24   15  -20   13  -16   10  -12    8   -8    5   -4    2
CE110  14    0    0    4   -2    8   -5   12   -7   16  -10   20  -13   24  -15
CE110  15   28  -18   32  -21   36  -23   40  -26   44  -29   48  -31   52  -34
CE110  16   56  -37   60  -39   64  -42   68  -45   72  -47   76  -50   80  -53
CE110  17   84  -55   88  -58   92  -61   96  -63  100  -66  104  -69  108  -71
CE110  18  112  -74  116  -77  120  -79  124  -82  128  -85  132  -87  136  -90
CE110  19  140  -93  144  -95  148  -98  152 -101  156 -103  160 -106  164 -109
CE110  1A  168 -111  172 -114  176 -117  180 -119  184 -122  188 -125  192 -127
CE110  1B  196 -130  200 -133  204 -135  208 -138  212 -141  216 -143  220 -146
CE110  1C  224 -150

CE110  21560615  100 75 -150             -72   45  -68   41  -64   41  -60   40
CE110  22  -56   39  -52   34  -48   32  -44   28  -40   24  -36   21  -32   20
CE110  23  -28   15  -24   13  -20   11  -16    7  -12    4   -8    3   -4    0
CE110  24    0   -4    4   -6    8   -8   12   -9   16  -12   20  -16   24  -18
CE110  25   28  -21   32  -23   36  -27   40  -29   44  -32   48  -35   52  -37
CE110  26   56  -39   60  -40   64  -45   68  -47   72  -48   76  -51   80  -53
CE110  27   84  -57   88  -60   92  -62   96  -64  100  -67  104  -70  108  -74
CE110  28  112  -77  116  -80  120  -84  124  -88  128  -92  132  -97  136  -99
CE110  29  140 -101  144 -104  148 -107  152 -109  156 -111  160 -117  164 -118
CE110  2A  168 -123  172 -127  176 -132  180 -136  184 -138  188 -139  192 -140
CE110  2B  196 -141  200 -143  204 -145  208 -146  212 -146  216 -147  220 -148
CE110  2C  224 -149

CE110  31560615  300 75 -150             -72   46  -68   42  -64   40  -60   40
CE110  32  -56   38  -52   35  -48   32  -44   32  -40   28  -36   22  -32   20
CE110  33  -28   16  -24    7  -20    3  -16    0  -12   -3   -8   -5   -4   -8
CE110  34    0  -10    4  -12    8  -14   12  -15   16  -16   20  -18   24  -19
CE110  35   28  -19   32  -21   36  -23   40  -26   44  -27   48  -29   52  -31
CE110  36   56  -39   60  -50   64  -55   68  -57   72  -44   76  -36   80  -36
CE110  37   84  -40   88  -44   92  -47   96  -51  100  -56  104  -62  108  -71
CE110  38  112  -73  116  -80  120  -83  124  -88  128  -92  132  -95  136  -98
CE110  39  140 -100  144 -103  148 -103  152 -109  156 -111  160 -114  164 -118
CE110  3A  168 -120  172 -125  176 -133  180 -133  184 -136  188 -138  192 -140
CE110  3B  196 -142  200 -140  204 -143  208 -144  212 -145  216 -146  220 -147
CE110  3C  224 -148

CE110  41560615  500 74 -150             -72   45  -68   45  -64   43  -60   39
CE110  42  -56   33  -52   30  -48   25  -44   19  -40   13  -36   10  -32    6
CE110  43  -28    3  -24    0  -20   -3  -16   -6  -12   -8   -8  -10   -4  -12
CE110  44    0  -13    4  -15    8  -17   12  -19   16  -22   20  -24   24  -26
CE110  45   28  -28   32  -30   36  -32   40  -33   44  -30   48  -32   52  -32
CE110  46   56  -35   60  -41   64  -48   68  -51   72  -52   76  -48   80  -44
CE110  47   84  -39   88  -40   92  -46   96  -48  100  -43  104  -43  108  -46
CE110  48  112  -49  116  -52  120  -57  124  -61  128  -76  132  -88  136  -92
CE110  49  140  -98  144 -101  148 -105  152 -108  156 -111  160 -116  164 -130
CE110  4A  168 -130  172 -134  176 -131  180 -131  184 -135  188 -131  192 -140
CE110  4B  196 -140  200 -143  204 -140  208 -143  212 -145  216 -146  220 -147
```

(Continued)

(Sheet 3 of 31)

Table C2 (Continued)

```
CE110   51560615 1200 75 -150              -72   44  -68   34  -64   29  -60   24
CE110   52  -56   19  -52   14  -48   11  -44    8  -40    6  -36    4  -32    1
CE110   53  -28    0  -24   -2  -20   -5  -16   -6  -12   -8   -8   -9   -4  -10
CE110   54    0  -13    4  -15    8  -17   12  -19   16  -22   20  -23   24  -25
CE110   55   28  -27   32  -28   36  -28   40  -28   44  -29   48  -31   52  -32
CE110   56   56  -31   60  -31   64  -32   68  -37   72  -50   76  -57   80  -54
CE110   57   84  -45   88  -41   92  -46   96  -48  100  -44  104  -39  108  -42
CE110   58  112  -44  116  -48  120  -51  124  -55  128  -59  132  -63  136  -73
CE110   59  140  -90  144  -99  148  -98  152 -109  156 -122  160 -116  164 -118
CE110   5A  168 -121  172 -127  176 -136  180 -135  184 -132  188 -133  192 -137
CE110   5B  196 -138  200 -141  204 -142  208 -144  212 -145  216 -146  220 -148
CE110   5C  224 -149

CE110   61560615 1975 74 -150              -72   29  -68   23  -64   21  -60   17
CE110   62  -56   13  -52   11  -48    7  -44    2  -40    0  -36   -2  -32   -3
CE110   63  -28   -5  -24   -6  -20   -8  -16   -9  -12   -9   -8  -11   -4  -15
CE110   64    0  -17    4  -19    8  -19   12  -20   16  -20   20  -21   24  -24
CE110   65   28  -26   32  -29   36  -29   40  -27   44  -30   48  -31   52  -31
CE110   66   56  -32   60  -31   64  -30   68  -37   72  -43   76  -43   80  -40
CE110   67   84  -39   88  -44   92  -52   96  -47  100  -39  104  -37  108  -39
CE110   68  112  -43  116  -46  120  -48  124  -51  128  -55  132  -58  136  -60
CE110   69  140  -69  144  -80  148 -100  152 -111  156 -113  160 -122  164 -128
CE110   6A  168 -125  172 -126  176 -129  180 -135  184 -137  188 -138  192 -140
CE110   6B  196 -140  200 -143  204 -144  208 -145  212 -146  216 -147  220 -147

CE110   71560615 2550 74 -150              -72   30  -68   26  -64   20  -60   14
CE110   72  -56    8  -52    4  -48    0  -44   -5  -40   -7  -36   -8  -32   -9
CE110   73  -28   -9  -24  -10  -20  -10  -16  -10  -12  -12   -8  -13   -4  -16
CE110   74    0  -17    4  -17    8  -18   12  -20   16  -21   20  -25   24  -30
CE110   75   28  -30   32  -24   36  -20   40  -19   44  -19   48  -21   52  -31
CE110   76   56  -34   60  -38   64  -42   68  -42   72  -37   76  -34   80  -30
CE110   77   84  -31   88  -38   92  -39   96  -36  100  -35  104  -37  108  -40
CE110   78  112  -44  116  -46  120  -48  124  -52  128  -56  132  -59  136  -71
CE110   79  140  -86  144 -102  148 -113  152 -110  156 -121  160 -117  164 -119
CE110   7A  168 -120  172 -128  176 -127  180 -127  184 -135  188 -135  192 -135
CE110   7B  196 -139  200 -141  204 -144  208 -146  212 -147  216 -148  220 -149

CE110   81560615 3000 73 -150              -72   27  -68   22  -64   14  -60    9
CE110   82  -56    3  -52   -1  -48   -4  -44   -6  -40   -6  -36   -7  -32   -8
CE110   83  -28   -9  -24   -9  -20  -10  -16  -11  -12  -10   -8  -13   -4  -15
CE110   84    0  -17    4  -19    8  -21   12  -22   16  -21   20  -19   24  -19
CE110   85   28  -20   32  -22   36  -26   40  -27   44  -24   48  -26   52  -29
CE110   86   56  -28   60  -27   64  -26   68  -28   72  -31   76  -42   80  -43
CE110   87   84  -38   88  -35   92  -37   96  -40  100  -33  104  -32  108  -36
CE110   88  112  -39  116  -44  120  -47  124  -50  128  -55  132  -59  136  -66
CE110   89  140  -82  144  -99  148 -112  152 -112  156 -116  160 -120  164 -121
CE110   8A  168 -123  172 -124  176 -127  180 -130  184 -133  188 -132  192 -134
CE110   8B  196 -136  200 -142  204 -146  208 -144  212 -147  216 -149
```

(Continued)

(Sheet 4 of 31)

Table C2 (Continued)

CASE 200

```
CE200   11560518     0 70 -150             -68   47  -64   44  -60   42  -56   39
CE200   12  -52   36  -48   33  -44   30  -40   28  -36   25  -32   22  -28   19
CE200   13  -24   16  -20   14  -16   11  -12    8   -8    5   -4    2    0    0
CE200   14    4   -2    8   -5   12   -8   16  -11   20  -14   24  -16   28  -19
CE200   15   32  -22   36  -25   40  -28   44  -30   48  -33   52  -36   56  -39
CE200   16   60  -42   64  -44   68  -47   72  -50   76  -53   80  -56   84  -58
CE200   17   88  -61   92  -64   96  -67  100  -70  104  -73  108  -75  112  -78
CE200   18  116  -81  120  -84  124  -87  128  -89  132  -92  136  -95  140  -98
CE200   19  144 -101  148 -103  152 -106  156 -109  160 -112  164 -115  168 -117
CE200   1A  172 -120  176 -123  180 -126  184 -129  188 -131  192 -134  196 -137
CE200   1B  200 -140  204 -143  208 -146

CE200   21560518   200 70 -150             -68   47  -64   43  -60   40  -56   38
CE200   22  -52   37  -48   34  -44   31  -40   28  -36   25  -32   24  -28   24
CE200   23  -24   26  -20   24  -16   18  -12   14   -8    8   -4    6    0    0
CE200   24    4   -3    8   -5   12   -8   16  -11   20  -12   24  -14   28  -17
CE200   25   32  -20   36  -21   40  -22   44  -23   48  -40   52  -44   56  -37
CE200   26   60  -30   64  -32   68  -34   72  -38   76  -41   80  -43   84  -48
CE200   27   88  -52   92  -60   96  -63  100  -66  104  -70  108  -71  112  -72
CE200   28  116  -74  120  -78  124  -82  128  -85  132  -90  136  -93  140  -96
CE200   29  144  -97  148 -102  152 -104  156 -107  160 -112  164 -114  168 -118
CE200   2A  172 -120  176 -122  180 -128  184 -128  188 -133  192 -139  196 -139
CE200   2B  200 -140  204 -145  208 -147

CE200   31560518   400 72 -150             -68   47  -64   43  -60   40  -56   39
CE200   32  -52   37  -48   34  -44   29  -40   27  -36   24  -32   23  -28   25
CE200   33  -24   26  -20   25  -16   20  -12   15   -8    9   -4    3    0    0
CE200   34    4   -3    8   -6   12   -9   16  -12   20  -15   24  -17   28  -18
CE200   35   32  -19   36  -19   40  -20   44  -23   48  -41   52  -44   56  -31
CE200   36   60  -29   64  -31   68  -33   72  -37   76  -40   80  -44   84  -47
CE200   37   88  -49   92  -57   96  -63  100  -67  104  -69  108  -73  112  -71
CE200   38  116  -71  120  -78  124  -80  128  -88  132  -91  136  -90  140  -98
CE200   39  144  -99  148 -101  152 -104  156 -104  160 -111  164 -113  168 -117
CE200   3A  172 -120  176 -125  180 -127  184 -127  188 -132  192 -136  196 -139
CE200   3B  200 -142  204 -144  208 -146  212 -146  216 -146

CE200   41560518   600 70 -150             -68   47  -64   42  -60   40  -56   38
CE200   42  -52   37  -48   34  -44   30  -40   27  -36   25  -32   24  -28   27
CE200   43  -24   27  -20   19  -16   14  -12   11   -8    6   -4    1    0   -2
CE200   44    4   -4    8   -7   12   -9   16  -11   20  -12   24  -14   28  -16
CE200   45   32  -16   36  -17   40  -19   44  -20   48  -34   52  -45   56  -46
CE200   46   60  -36   64  -30   68  -31   72  -33   76  -37   80  -41   84  -44
CE200   47   88  -49   92  -56   96  -64  100  -69  104  -72  108  -70  112  -71
CE200   48  116  -81  120  -81  124  -84  128  -82  132  -89  136  -91  140  -96
CE200   49  144  -97  148 -100  152 -104  156 -104  160 -111  164 -115  168 -118
CE200   4A  172 -120  176 -124  180 -127  184 -130  188 -132  192 -136  196 -139
CE200   4B  200 -143  204 -145  208 -146
```

(Continued)

(Sheet 5 of 31)

Table C2 (Continued)

CE200	51560518		800	64	-150			-68	47	-64	43	-60	40	-56	39
CE200	52	-52	37	-48	34	-44	30	-40	27	-36	28	-32	27	-28	26
CE200	53	-24	22	-20	17	-16	14	-12	8	-8	4	-4	0	0	-2
CE200	54	4	-5	8	-6	12	-8	16	-9	20	-12	24	-13	28	-14
CE200	55	32	-15	36	-16	40	-18	44	-19	48	-23	52	-39	56	-46
CE200	56	60	-44	64	-33	68	-31	72	-32	76	-35	80	-38	84	-42
CE200	57	88	-48	92	-60	96	-66	100	-72	104	-65	108	-67	112	-82
CE200	58	116	-83	120	-77	124	-81	128	-87	132	-85	136	-98	140	-101
CE200	59	144	-98	148	-97	152	-105	156	-107	160	-109	164	-114	168	-118
CE200	5A	172	-118	176	-123	180	-125	184	-128						
CE200	61560518		900	71	-150			-68	47	-64	43	-60	40	-56	39
CE200	62	-52	37	-48	35	-44	32	-40	29	-36	28	-32	27	-28	28
CE200	63	-24	25	-20	18	-16	14	-12	8	-8	3	-4	0	0	-2
CE200	64	4	-6	8	-6	12	-9	16	-10	20	-11	24	-13	28	-13
CE200	65	32	-15	36	-17	40	-18	44	-21	48	-22	52	-38	56	-47
CE200	66	60	-42	64	-32	68	-30	72	-32	76	-35	80	-38	84	-42
CE200	67	88	-49	92	-62	96	-68	100	-63	104	-64	108	-78	112	-81
CE200	68	116	-78	120	-74	124	-87	128	-81	132	-87	136	-98	140	-97
CE200	69	144	-98	148	-94	152	-105	156	-108	160	-112	164	-115	168	-116
CE200	6A	172	-119	176	-124	180	-124	184	-128	188	-133	192	-136	196	-139
CE200	6B	200	-142	204	-145	208	-146	212	-147						
CE200	81560518		1450	70	-150			-68	47	-64	44	-60	41	-56	38
CE200	82	-52	35	-48	32	-44	29	-40	27	-36	28	-32	28	-28	25
CE200	83	-24	19	-20	13	-16	7	-12	2	-8	-2	-4	-5	0	-8
CE200	84	4	-10	8	-11	12	-11	16	-12	20	-13	24	-13	28	-15
CE200	85	32	-16	36	-17	40	-19	44	-21	48	-22	52	-24	56	-34
CE200	86	60	-44	64	-42	68	-32	72	-30	76	-32	80	-36	84	-41
CE200	87	88	-48	92	-55	96	-66	100	-63	104	-66	108	-72	112	-83
CE200	88	116	-77	120	-85	124	-88	128	-88	132	-93	136	-97	140	-92
CE200	89	144	-95	148	-104	152	-109	156	-105	160	-115	164	-118	168	-120
CE200	8A	172	-125	176	-121	180	-128	184	-130	188	-134	192	-137	196	-140
CE200	8B	200	-143	204	-145	208	-146								
CE200	91560518		1950	70	-150			-68	47	-64	44	-60	41	-56	38
CE200	92	-52	36	-48	33	-44	30	-40	28	-36	29	-32	29	-28	26
CE200	93	-24	19	-20	13	-16	6	-12	0	-8	-3	-4	-5	0	-7
CE200	94	4	-8	8	-8	12	-9	16	-11	20	-12	24	-14	28	-15
CE200	95	32	-16	36	-18	40	-19	44	-20	48	-22	52	-22	56	-33
CE200	96	60	-39	64	-35	68	-29	72	-27	76	-30	80	-34	84	-39
CE200	97	88	-40	92	-44	96	-56	100	-73	104	-68	108	-71	112	-86
CE200	98	116	-83	120	-81	124	-91	128	-87	132	-85	136	-87	140	-100
CE200	99	144	-109	148	-104	152	-108	156	-116	160	-114	164	-115	168	-121
CE200	9A	172	-122	176	-123	180	-127	184	-130	188	-133	192	-136	196	-141
CE200	9B	200	-146	204	-143	208	-146								

(Continued)

(Sheet 6 of 31)

Table C2 (Continued)

```
CE200  101560518 2350 70 -150             -68   47  -64   44  -60   41  -56   38
CE200  102  -52   35  -48   32  -44   28  -40   27  -36   28  -32   28  -28   23
CE200  103  -24   18  -20   11  -16    4  -12    0   -8   -4   -4   -5    0   -7
CE200  104    4   -8    8   -8   12   -9   16  -10   20  -10   24  -12   28  -14
CE200  105   32  -17   36  -18   40  -19   44  -20   48  -21   52  -22   56  -29
CE200  106   60  -38   64  -37   68  -29   72  -28   76  -31   80  -35   84  -40
CE200  107   88  -42   92  -50   96  -57  100  -74  104  -78  108  -74  112  -80
CE200  108  116  -87  120  -83  124  -81  128  -81  132  -85  136 -104  140 -104
CE200  109  144  -99  148 -109  152 -113  156 -118  160 -117  164 -118  168 -117
CE200  10A  172 -122  176 -124  180 -127  184 -131  188 -134  192 -137  196 -142
CE200  10B  200 -145  204 -146  208 -146

CE200  121560518 2850 71 -150             -68   47  -64   44  -60   41  -56   38
CE200  122  -52   34  -48   32  -44   29  -40   28  -36   28  -32   28  -28   25
CE200  123  -24   20  -20   14  -16    7  -12    1   -8   -2   -4   -4    0   -6
CE200  124    4   -7    8   -7   12   -8   16  -10   20  -11   24  -12   28  -14
CE200  125   32  -16   36  -16   40  -18   44  -20   48  -21   52  -22   56  -25
CE200  126   60  -36   64  -36   68  -29   72  -27   76  -27   80  -34   84  -41
CE200  127   88  -41   92  -57   96  -70  100  -72  104  -68  108  -71  112  -73
CE200  128  116  -75  120  -76  124  -83  128  -99  132  -98  136  -98  140 -110
CE200  129  144 -107  148 -103  152 -116  156 -116  160 -117  164 -117  168 -121
CE200  12A  172 -122  176 -124  180 -126  184 -130  188 -133  192 -135  196 -143
CE200  12B  200 -146  204 -146  208 -144  212 -147

CE200  131560518 3450 72 -150             -68   47  -64   44  -60   41  -56   37
CE200  132  -52   34  -48   32  -44   29  -40   28  -36   28  -32   29  -28   26
CE200  133  -24   23  -20   17  -16   11  -12    5   -8    0   -4   -3    0   -5
CE200  134    4   -6    8   -7   12   -9   16  -10   20  -11   24  -12   28  -14
CE200  135   32  -16   36  -16   40  -17   44  -20   48  -21   52  -22   56  -28
CE200  136   60  -40   64  -40   68  -32   72  -30   76  -32   80  -36   84  -39
CE200  137   88  -45   92  -47   96  -53  100  -61  104  -67  108  -70  112  -73
CE200  138  116  -91  120  -96  124  -86  128  -97  132 -105  136 -100  140 -107
CE200  139  144 -114  148 -114  152 -111  156 -115  160 -114  164 -119  168 -122
CE200  13A  172 -121  176 -124  180 -125  184 -129  188 -131  192 -137  196 -145
CE200  13B  200 -145  204 -145  208 -145  212 -146  216 -146

CE200  141560518 4000 72 -150             -68   47  -64   44  -60   41  -56   38
CE200  142  -52   34  -48   32  -44   30  -40   29  -36   30  -32   31  -28   28
CE200  143  -24   24  -20   19  -16   12  -12    6   -8    0   -4   -3    0   -6
CE200  144    4   -7    8   -8   12   -8   16  -10   20  -11   24  -12   28  -14
CE200  145   32  -15   36  -17   40  -18   44  -20   48  -22   52  -22   56  -27
CE200  146   60  -36   64  -40   68  -34   72  -29   76  -30   80  -35   84  -40
CE200  147   88  -44   92  -46   96  -50  100  -55  104  -69  108  -84  112  -78
CE200  148  116  -83  120  -93  124  -99  128  -88  132  -97  136 -108  140 -103
CE200  149  144 -109  148 -113  152 -113  156 -112  160 -117  164 -119  168 -121
CE200  14A  172 -122  176 -123  180 -127  184 -129  188 -134  192 -138  196 -143
CE200  14B  200 -144  204 -145  208 -146  212 -146  216 -147
```

(Continued)

(Sheet 7 of 31)

Table C2 (Continued)

CE200	151560518		4600	68	-150			-68	47	-64	44	-60	41	-56	38
CE200	152	-52	34	-48	31	-44	29	-40	28	-36	29	-32	30	-28	28
CE200	153	-24	22	-20	17	-16	10	-12	2	-8	0	-4	-3	0	-5
CE200	154	4	-6	8	-6	12	-7	16	-9	20	-10	24	-10	28	-12
CE200	155	32	-14	36	-15	40	-17	44	-18	48	-19	52	-21	56	-26
CE200	156	60	-43	64	-42	68	-35	72	-28	76	-31	80	-34	84	-38
CE200	157	88	-40	92	-43	96	-53	100	-73	104	-78	108	-76	112	-83
CE200	158	116	-88	120	-81	124	-89	128	-100	132	-97	136	-102	140	-108
CE200	159	144	-107	148	-113	152	-112	156	-117	160	-118	164	-121	168	-121
CE200	15A	172	-122	176	-122	180	-125	184	-130	188	-134	192	-137	196	-141
CE200	15B	200	-143												

CASE 300

CE300	11561128		0	76	-140			-92	63	-88	61	-84	59	-80	57
CE300	12	-76	55	-72	52	-68	48	-64	45	-60	42	-56	39	-52	36
CE300	13	-48	34	-44	30	-40	27	-36	24	-32	21	-28	18	-24	16
CE300	14	-20	13	-16	10	-12	7	-8	5	-4	2	0	0	4	-2
CE300	15	8	-5	12	-7	16	-10	20	-12	24	-15	28	-18	32	-20
CE300	16	36	-23	40	-25	44	-28	48	-31	52	-33	56	-36	60	-38
CE300	17	64	-41	68	-44	72	-46	76	-49	80	-51	84	-54	88	-56
CE300	18	92	-59	96	-61	100	-64	104	-66	108	-69	112	-71	116	-74
CE300	19	120	-77	124	-80	128	-82	132	-85	136	-88	140	-90	144	-93
CE300	1A	148	-96	152	-99	156	-103	160	-106	164	-109	168	-112	172	-115
CE300	1B	176	-119	180	-122	184	-125	188	-128	192	-131	196	-133	200	-136
CE300	1C	204	-139	208	-140										

CE300	21561128		100	80	-140			-84	59	-80	57	-76	55	-72	52
CE300	22	-68	48	-64	45	-60	42	-56	39	-52	36	-48	34	-44	30
CE300	23	-40	24	-36	18	-32	15	-28	11	-24	6	-20	3	-16	0
CE300	24	-12	-2	-8	-3	-4	-6	0	-8	4	-10	8	-12	12	-13
CE300	25	16	-14	20	-16	24	-18	28	-20	32	-22	36	-24	40	-24
CE300	26	44	-25	48	-28	52	-30	56	-30	60	-32	64	-38	68	-50
CE300	27	72	-65	76	-73	80	-73	84	-71	88	-57	92	-48	96	-44
CE300	28	100	-44	104	-47	108	-51	112	-53	116	-56	120	-61	124	-66
CE300	29	128	-70	132	-75	136	-79	140	-82	144	-89	148	-93	152	-96
CE300	2A	156	-99	160	-102	164	-106	168	-110	172	-114	176	-119	180	-122
CE300	2B	184	-125	188	-129	192	-132	196	-135	200	-137	204	-138	208	-138
CE300	2C	212	-138	216	-139	220	-139	224	-140	228	-140	232	-140		

CE300	31561128		300	78	-140			-84	59	-80	57	-76	55	-72	52
CE300	32	-68	49	-64	45	-60	43	-56	40	-52	36	-48	28	-44	22
CE300	33	-40	15	-36	9	-32	4	-28	0	-24	-3	-20	-5	-16	-7
CE300	34	-12	-9	-8	-10	-4	-10	0	-11	4	-12	8	-15	12	-19
CE300	35	16	-19	20	-20	24	-21	28	-21	32	-22	36	-24	40	-25
CE300	36	44	-26	48	-26	52	-26	56	-26	60	-25	64	-27	68	-33
CE300	37	72	-39	76	-42	80	-53	84	-69	88	-81	92	-82	96	-79
CE300	38	100	-67	104	-53	108	-44	112	-42	116	-42	120	-45	124	-50
CE300	39	128	-54	132	-60	136	-63	140	-66	144	-71	148	-75	152	-81
CE300	3A	156	-88	160	-97	164	-103	168	-108	172	-112	176	-117	180	-122
CE300	3B	184	-127	188	-129	192	-132	196	-134	200	-135	204	-136	208	-138
CE300	3C	212	-138	216	-139	220	-139	224	-140						

(Continued)

Table C2 (Continued)

```
CE300   41561128  500  80 -140             -84   59  -80   57  -76   55  -72   52
CE300   42  -68   48  -64   44  -60   44  -56   42  -52   30  -48   22  -44   15
CE300   43  -40    7  -36    1  -32   -3  -28   -5  -24   -6  -20   -7  -16   -8
CE300   44  -12   -9   -8  -10   -4  -11    0  -12    4  -14    8  -17   12  -19
CE300   45   16  -19   20  -20   24  -22   28  -24   32  -24   36  -24   40  -25
CE300   46   44  -25   48  -25   52  -25   56  -26   60  -27   64  -28   68  -33
CE300   47   72  -39   76  -40   80  -39   84  -43   88  -55   92  -66   96  -75
CE300   48  100  -82  104  -82  108  -76  112  -62  116  -48  120  -43  124  -42
CE300   49  128  -45  132  -49  136  -52  140  -57  144  -61  148  -65  152  -70
CE300   4A  156  -74  160  -83  164  -94  168 -103  172 -109  176 -115  180 -121
CE300   4B  184 -124  188 -128  192 -130  196 -132  200 -134  204 -134  208 -134
CE300   4C  212 -136  216 -138  220 -138  224 -139  228 -139  232 -140

CE300   51561128 1000  80 -140             -84   59  -80   57  -76   55  -72   52
CE300   52  -68   48  -64   47  -60   21  -56   13  -52    7  -48    2  -44   -3
CE300   53  -40   -5  -36   -7  -32   -8  -28   -9  -24   -9  -20  -10  -16  -11
CE300   54  -12  -13   -8  -14   -4  -16    0  -19    4  -19    8  -20   12  -22
CE300   55   16  -24   20  -26   24  -27   28  -28   32  -28   36  -29   40  -29
CE300   56   44  -30   48  -32   52  -34   56  -41   60  -49   64  -46   68  -40
CE300   57   72  -35   76  -33   80  -35   84  -38   88  -45   92  -54   96  -61
CE300   58  100  -66  104  -74  108  -77  112  -75  116  -69  120  -59  124  -49
CE300   59  128  -44  132  -45  136  -46  140  -49  144  -52  148  -55  152  -59
CE300   5A  156  -62  160  -65  164  -69  168  -74  172  -84  176  -98  180 -112
CE300   5B  184 -119  188 -125  192 -129  196 -133  200 -135  204 -136  208 -137
CE300   5C  212 -138  216 -138  220 -138  224 -139  228 -139  232 -140

CE300   61561128 1500  80 -140             -84   59  -80   57  -76   55  -72   52
CE300   62  -68   48  -64   20  -60   12  -56    1  -52   -2  -48   -3  -44   -4
CE300   63  -40   -5  -36   -5  -32   -6  -28   -8  -24   -9  -20  -12  -16  -13
CE300   64  -12  -13   -8  -15   -4  -18    0  -19    4  -21    8  -22   12  -20
CE300   65   16  -20   20  -22   24  -23   28  -23   32  -24   36  -25   40  -27
CE300   66   44  -31   48  -37   52  -42   56  -46   60  -48   64  -46   68  -45
CE300   67   72  -45   76  -41   80  -37   84  -36   88  -37   92  -40   96  -44
CE300   68  100  -50  104  -57  108  -66  112  -69  116  -62  120  -51  124  -45
CE300   69  128  -43  132  -45  136  -48  140  -50  144  -53  148  -58  152  -61
CE300   6A  156  -65  160  -69  164  -73  168  -77  172  -82  176  -91  180 -100
CE300   6B  184 -111  188 -120  192 -126  196 -131  200 -133  204 -134  208 -136
CE300   6C  212 -138  216 -138  220 -138  224 -139  228 -139  232 -140

CE300   91561128 2000  81 -140             -84   59  -80   57  -76   55  -72   52
CE300   92  -68   42  -64   16  -60    5  -56   -1  -52   -3  -48   -5  -44   -5
CE300   93  -40   -6  -36   -8  -32  -10  -28  -10  -24  -10  -20  -11  -16  -12
CE300   94  -12  -13   -8  -16   -4  -19    0  -21    4  -19    8  -19   12  -20
CE300   95   16  -20   20  -21   24  -21   28  -20   32  -20   36  -21   40  -23
CE300   96   44  -29   48  -34   52  -39   56  -42   60  -46   64  -47   68  -55
CE300   97   72  -54   76  -45   80  -37   84  -34   88  -35   92  -39   96  -43
CE300   98  100  -51  104  -61  108  -69  112  -67  116  -56  120  -46  124  -44
CE300   99  128  -44  132  -47  136  -49  140  -51  144  -54  148  -59  152  -62
CE300   9A  156  -66  160  -70  164  -73  168  -78  172  -83  176  -90  180  -97
CE300   9B  184 -106  188 -116  192 -125  196 -132  200 -135  204 -137  208 -137
CE300   9C  212 -137  216 -137  220 -137  224 -137  228 -138  232 -139  236 -140
```

(Continued)

(Sheet 9 of 31)

Table C2 (Continued)

```
CE300  101561128 3000 81 -140                    -84    59   -80    57   -76    55   -72    53
CE300  102   -68    25   -64    17   -60    10   -56     3   -52    -2   -48    -6   -44    -8
CE300  103   -40    -9   -36   -10   -32   -12   -28   -14   -24   -15   -20   -13   -16   -14
CE300  104   -12   -14    -8   -16    -4   -21     0   -26     4   -30     8   -31    12   -28
CE300  105    16   -25    20   -25    24   -25    28   -27    32   -31    36   -24    40   -24
CE300  106    44   -29    48   -34    52   -36    56   -39    60   -40    64   -42    68   -46
CE300  107    72   -51    76   -50    80   -44    84   -38    88   -35    92   -37    96   -40
CE300  108   100   -44   104   -52   108   -61   112   -69   116   -65   120   -53   124   -46
CE300  109   128   -42   132   -44   136   -47   140   -49   144   -52   148   -56   152   -61
CE300  10A   156   -65   160   -71   164   -74   168   -78   172   -82   176   -88   180   -96
CE300  10B   184  -106   188  -116   192  -125   196  -130   200  -135   204  -137   208  -138
CE300  10C   212  -139   216  -139   220  -139   224  -139   228  -139   232  -139   236  -140

CE300  111561128 4000 81 -140                    -84    59   -80    57   -76    55   -72    42
CE300  112   -68    21   -64    13   -60     9   -56     3   -52    -1   -48    -4   -44    -6
CE300  113   -40    -8   -36    -8   -32    -9   -28   -10   -24   -11   -20   -12   -16   -13
CE300  114   -12   -16    -8   -23    -4   -28     0   -27     4   -33     8   -39    12   -35
CE300  115    16   -30    20   -28    24   -26    28   -24    32   -28    36   -28    40   -25
CE300  116    44   -24    48   -27    52   -32    56   -37    60   -41    64   -43    68   -46
CE300  117    72   -52    76   -52    80   -46    84   -38    88   -36    92   -36    96   -39
CE300  118   100   -44   104   -50   108   -57   112   -68   116   -66   120   -57   124   -49
CE300  119   128   -45   132   -44   136   -46   140   -49   144   -52   148   -55   152   -59
CE300  11A   156   -62   160   -67   164   -71   168   -76   172   -81   176   -86   180   -91
CE300  11B   184   -98   188  -110   192  -122   196  -129   200  -136   204  -138   208  -138
CE300  11C   212  -138   216  -138   220  -138   224  -138   228  -138   232  -139   236  -140

CE300  121561128 5000 81 -140                    -84    59   -80    57   -76    56   -72    36
CE300  122   -68    26   -64    18   -60    12   -56     4   -52    -2   -48    -5   -44    -7
CE300  123   -40    -9   -36    -9   -32   -10   -28   -11   -24   -13   -20   -14   -16   -14
CE300  124   -12   -15    -8   -18    -4   -21     0   -24     4   -29     8   -38    12   -36
CE300  125    16   -32    20   -32    24   -33    28   -33    32   -34    36   -34    40   -33
CE300  126    44   -32    48   -30    52   -29    56   -33    60   -39    64   -44    68   -49
CE300  127    72   -53    76   -52    80   -46    84   -37    88   -35    92   -37    96   -39
CE300  128   100   -42   104   -46   108   -52   112   -60   116   -70   120   -73   124   -72
CE300  129   128   -63   132   -53   136   -48   140   -46   144   -47   148   -49   152   -52
CE300  12A   156   -55   160   -57   164   -60   168   -63   172   -67   176   -70   180   -75
CE300  12B   184   -81   188   -90   192  -100   196  -117   200  -127   204  -134   208  -137
CE300  12C   212  -138   216  -138   220  -138   224  -138   228  -138   232  -139   236  -140
```

(Continued)

(Sheet 10 of 31)

Table C2 (Continued)

CASE 400

```
CE400   11561228     0 84 -145              -92    54   -88    54   -84    54   -80    54
CE400   12   -76    52   -72    50   -68    45   -64    42   -60    39   -56    36   -52    33
CE400   13   -48    30   -44    27   -40    23   -36    20   -32    18   -28    16   -24    13
CE400   14   -20    11   -16     9   -12     7    -8     4    -4     2     0     0     4    -3
CE400   15     8    -6    12    -8    16   -11    20   -13    24   -16    28   -19    32   -22
CE400   16    36   -25    40   -27    44   -30    48   -33    52   -35    56   -38    60   -41
CE400   17    64   -44    68   -47    72   -49    76   -52    80   -54    84   -57    88   -59
CE400   18    92   -62    96   -65   100   -68   104   -72   108   -75   112   -78   116   -80
CE400   19   120   -82   124   -84   128   -87   132   -91   136   -93   140   -96   144   -99
CE400   1A   148  -103   152  -107   156  -111   160  -114   164  -117   168  -119   172  -121
CE400   1B   176  -124   180  -128   184  -131   188  -133   192  -137   196  -139   200  -141
CE400   1C   204  -142   208  -143   212  -143   216  -143   220  -143   224  -142   228  -143
CE400   1D   232  -144   236  -144   240  -145

CE400   21561228   100 84 -145              -92    54   -88    54   -84    54   -80    54
CE400   22   -76    52   -72    50   -68    45   -64    42   -60    39   -56    36   -52    33
CE400   23   -48    30   -44    26   -40    21   -36    17   -32    14   -28    10   -24     6
CE400   24   -20     3   -16     1   -12    -1    -8    -4    -4    -6     0    -8     4   -10
CE400   25     8   -13    12   -15    16   -17    20   -19    24   -22    28   -24    32   -25
CE400   26    36   -29    40   -35    44   -39    48   -39    52   -34    56   -34    60   -40
CE400   27    64   -47    68   -58    72   -68    76   -70    80   -70    84   -63    88   -57
CE400   28    92   -51    96   -46   100   -45   104   -48   108   -51   112   -55   116   -60
CE400   29   120   -65   124   -70   128   -75   132   -80   136   -85   140   -90   144   -95
CE400   2A   148  -100   152  -105   156  -109   160  -113   164  -115   168  -119   172  -121
CE400   2B   176  -123   180  -126   184  -130   188  -132   192  -136   196  -139   200  -141
CE400   2C   204  -142   208  -142   212  -142   216  -142   220  -142   224  -143   228  -143
CE400   2D   232  -144   236  -144   240  -145

CE400   31561228   300 84 -145              -92    54   -88    54   -84    54   -80    54
CE400   32   -76    52   -72    50   -68    46   -64    43   -60    40   -56    35   -52    30
CE400   33   -48    23   -44    18   -40    13   -36     8   -32     4   -28     2   -24     1
CE400   34   -20    -1   -16    -3   -12    -6    -8    -8    -4   -10     0   -12     4   -15
CE400   35     8   -17    12   -18    16   -21    20   -24    24   -25    28   -24    32   -26
CE400   36    36   -31    40   -36    44   -39    48   -41    52   -38    56   -34    60   -34
CE400   37    64   -39    68   -44    72   -49    76   -57    80   -64    84   -70    88   -72
CE400   38    92   -73    96   -75   100   -70   104   -61   108   -52   112   -46   116   -46
CE400   39   120   -48   124   -52   128   -57   132   -62   136   -67   140   -72   144   -79
CE400   3A   148   -84   152   -94   156  -101   160  -109   164  -113   168  -117   172  -121
CE400   3B   176  -123   180  -126   184  -129   188  -132   192  -134   196  -137   200  -138
CE400   3C   204  -141   208  -142   212  -142   216  -142   220  -143   224  -143   228  -143
CE400   3D   232  -144   236  -144   240  -145
```

(Continued)

(Sheet 11 of 31)

Table C2 (Continued)

```
CE400   41561228   500 84 -145             -92   54  -88   54  -84   54  -80   54
CE400   42  -76   52  -72   49  -68   43  -64   31  -60   16  -56   14  -52   11
CE400   43  -48    9  -44    7  -40    6  -36    4  -32    3  -28    1  -24    0
CE400   44  -20   -1  -16   -3  -12   -5   -8   -6   -4   -8    0  -11    4  -13
CE400   45    8  -15   12  -17   16  -20   20  -22   24  -25   28  -26   32  -26
CE400   46   36  -29   40  -33   44  -36   48  -39   52  -40   56  -41   60  -42
CE400   47   64  -43   68  -43   72  -43   76  -46   80  -52   84  -58   88  -63
CE400   48   92  -70   96  -75  100  -79  104  -79  108  -80  112  -79  116  -74
CE400   49  120  -68  124  -58  128  -54  132  -54  136  -56  140  -61  144  -65
CE400   4A  148  -70  152  -75  156  -81  160  -89  164  -96  168 -104  172 -112
CE400   4B  176 -119  180 -122  184 -126  188 -130  192 -132  196 -135  200 -137
CE400   4C  204 -140  208 -141  212 -142  216 -142  220 -143  224 -143  228 -143
CE400   4D  232 -144  236 -144  240 -145

CE400   51561228  1000 84 -145             -92   54  -88   54  -84   54  -80   54
CE400   52  -76   52  -72   50  -68   43  -64   25  -60   20  -56   18  -52   13
CE400   53  -48    9  -44    6  -40    3  -36    1  -32    0  -28   -3  -24   -5
CE400   54  -20   -6  -16   -8  -12  -11   -8  -13   -4  -17    0  -18    4  -17
CE400   55    8  -19   12  -23   16  -26   20  -28   24  -29   28  -29   32  -30
CE400   56   36  -32   40  -35   44  -38   48  -41   52  -43   56  -44   60  -44
CE400   57   64  -45   68  -46   72  -48   76  -50   80  -51   84  -53   88  -56
CE400   58   92  -61   96  -66  100  -73  104  -77  108  -81  112  -83  116  -84
CE400   59  120  -84  124  -73  128  -61  132  -51  136  -51  140  -52  144  -57
CE400   5A  148  -61  152  -64  156  -70  160  -75  164  -81  168  -86  172  -93
CE400   5B  176  -99  180 -104  184 -112  188 -120  192 -126  196 -130  200 -135
CE400   5C  204 -139  208 -141  212 -142  216 -143  220 -143  224 -143  228 -143
CE400   5D  232 -144  236 -144  240 -145

CE400   61561228  1500 84 -145             -92   54  -88   54  -84   54  -80   54
CE400   62  -76   52  -72   50  -68   43  -64   25  -60   17  -56   11  -52    6
CE400   63  -48    2  -44    0  -40    0  -36   -2  -32   -4  -28   -7  -24   -8
CE400   64  -20  -10  -16  -12  -12  -15   -8  -17   -4  -18    0  -20    4  -21
CE400   65    8  -23   12  -25   16  -28   20  -29   24  -30   28  -30   32  -32
CE400   66   36  -34   40  -36   44  -39   48  -41   52  -43   56  -44   60  -45
CE400   67   64  -46   68  -47   72  -48   76  -50   80  -53   84  -55   88  -58
CE400   68   92  -61   96  -62  100  -67  104  -72  108  -79  112  -84  116  -89
CE400   69  120  -90  124  -89  128  -80  132  -65  136  -58  140  -51  144  -52
CE400   6A  148  -55  152  -59  156  -63  160  -68  164  -73  168  -79  172  -84
CE400   6B  176  -90  180  -96  184 -101  188 -106  192 -112  196 -120  200 -130
CE400   6C  204 -136  208 -141  212 -144  216 -144  220 -144  224 -144  228 -144
CE400   6D  232 -144  236 -144  240 -145
```

(Continued)

(Sheet 12 of 31)

Table C2 (Continued)

```
CE400    71561228 2000 84 -145             -92   54  -88   54  -84   54  -80   54
CE400    72  -76   52  -72   48  -68   43  -64   15  -60   10  -56    6  -52    6
CE400    73  -48    1  -44    0  -40   -2  -36   -4  -32   -6  -28   -8  -24  -10
CE400    74  -20  -12  -16  -13  -12  -14   -8  -17   -4  -21    0  -21    4  -23
CE400    75    8  -24   12  -26   16  -28   20  -29   24  -30   28  -31   32  -33
CE400    76   36  -35   40  -37   44  -38   48  -40   52  -42   56  -43   60  -43
CE400    77   64  -44   68  -45   72  -47   76  -49   80  -51   84  -53   88  -57
CE400    78   92  -58   96  -62  100  -66  104  -70  108  -74  112  -81  116  -86
CE400    79  120  -89  124  -91  128  -92  132  -85  136  -72  140  -58  144  -51
CE400    7A  148  -52  152  -55  156  -59  160  -64  164  -69  168  -74  172  -78
CE400    7B  176  -83  180  -89  184  -95  188 -100  192 -105  196 -113  200 -121
CE400    7C  204 -129  208 -137  212 -141  216 -143  220 -143  224 -143  228 -143
CE400    7D  232 -144  236 -144  240 -145

CE400    81561228 3000 84 -145             -92   54  -88   54  -84   54  -80   54
CE400    82  -76   52  -72   48  -68   43  -64   16  -60    5  -56    1  -52   -1
CE400    83  -48   -2  -44   -4  -40   -6  -36   -9  -32   -8  -28  -10  -24  -11
CE400    84  -20  -15  -16  -19  -12  -21   -8  -22   -4  -19    0  -20    4  -25
CE400    85    8  -30   12  -33   16  -34   20  -34   24  -33   28  -32   32  -29
CE400    86   36  -32   40  -36   44  -38   48  -39   52  -39   56  -37   60  -37
CE400    87   64  -38   68  -41   72  -46   76  -51   80  -56   84  -60   88  -62
CE400    88   92  -63   96  -64  100  -66  104  -70  108  -73  112  -79  116  -83
CE400    89  120  -90  124  -93  128  -93  132  -92  136  -90  140  -74  144  -55
CE400    8A  148  -51  152  -52  156  -55  160  -59  164  -63  168  -68  172  -73
CE400    8B  176  -78  180  -82  184  -87  188  -92  192  -97  196 -103  200 -109
CE400    8C  204 -119  208 -127  212 -140  216 -139  220 -142  224 -143  228 -143
CE400    8D  232 -144  236 -144  240 -145

CE400    91561228 4000 84 -145             -92   54  -88   54  -84   54  -80   54
CE400    92  -76   52  -72   49  -68   14  -64    7  -60    1  -56    0  -52   -1
CE400    93  -48   -2  -44   -5  -40   -9  -36   -9  -32   -6  -28  -11  -24  -15
CE400    94  -20  -19  -16  -20  -12  -22   -8  -14   -4  -15    0  -20    4  -26
CE400    95    8  -30   12  -34   16  -39   20  -43   24  -45   28  -45   32  -45
CE400    96   36  -43   40  -45   44  -45   48  -37   52  -34   56  -32   60  -35
CE400    97   64  -39   68  -46   72  -52   76  -56   80  -58   84  -60   88  -61
CE400    98   92  -62   96  -62  100  -64  104  -66  108  -71  112  -74  116  -79
CE400    99  120  -82  124  -86  128  -88  132  -91  136  -91  140  -87  144  -75
CE400    9A  148  -57  152  -51  156  -51  160  -54  164  -59  168  -64  172  -68
CE400    9B  176  -72  180  -77  184  -82  188  -87  192  -93  196  -98  200 -103
CE400    9C  204 -110  208 -115  212 -123  216 -130  220 -136  224 -140  228 -143
CE400    9D  232 -144  236 -144  240 -145
```

(Continued)

Table C2 (Continued)

CASE 500

```
CE500   11570311     0  84 -150                -80   49  -76   47  -72   46  -68   43
CE500   12   -64   40  -60   38  -56   35  -52   33  -48   30  -44   26  -40   23
CE500   13   -36   21  -32   18  -28   16  -24   14  -20   12  -16   10  -12    8
CE500   14    -8    5   -4    2    0    0    4   -2    8   -4   12   -7   16  -10
CE500   15    20  -13   24  -15   28  -18   32  -21   36  -23   40  -26   44  -28
CE500   16    48  -31   52  -34   56  -36   60  -39   64  -42   68  -45   72  -48
CE500   17    76  -51   80  -54   84  -56   88  -59   92  -62   96  -64  100  -67
CE500   18   104  -69  108  -72  112  -75  116  -78  120  -80  124  -82  128  -84
CE500   19   132  -87  136  -89  140  -92  144  -95  148  -98  152 -101  156 -104
CE500   1A   160 -107  164 -109  168 -112  172 -115  176 -119  180 -121  184 -124
CE500   1B   188 -126  192 -129  196 -132  200 -135  204 -139  208 -143  212 -145
CE500   1C   216 -146  220 -147  224 -148  228 -149  232 -150  236 -150  240 -150
CE500   1D   244 -150  248 -150  252 -150

CE500   21570311   100  82 -150                -80   49  -76   47  -72   46  -68   42
CE500   22   -64   41  -60   38  -56   35  -52   32  -48   30  -44   27  -40   23
CE500   23   -36   21  -32   19  -28   18  -24   15  -20   12  -16   10  -12    7
CE500   24    -8    4   -4    1    0    0    4   -2    8   -5   12   -9   16  -13
CE500   25    20  -16   24  -19   28  -22   32  -25   36  -28   40  -31   44  -35
CE500   26    48  -39   52  -41   56  -45   60  -48   64  -50   68  -51   72  -52
CE500   27    76  -54   80  -54   84  -53   88  -51   92  -44   96  -45  100  -51
CE500   28   104  -57  108  -60  112  -64  116  -69  120  -72  124  -76  128  -80
CE500   29   132  -82  136  -86  140  -90  144  -94  148  -97  152 -100  156 -102
CE500   2A   160 -107  164 -111  168 -114  172 -117  176 -119  180 -123  184 -128
CE500   2B   188 -128  192 -132  196 -136  200 -138  204 -140  208 -142  212 -144
CE500   2C   216 -147  220 -148  224 -149  228 -149  232 -149  236 -149  240 -150
CE500   2D   244 -150

CE500   31570311   300  81 -150                -80   49  -76   47  -72   46  -68   45
CE500   32   -64   41  -60   39  -56   36  -52   33  -48   30  -44   26  -40   22
CE500   33   -36   17  -32   13  -28    9  -24    6  -20    3  -16    0  -12   -1
CE500   34    -8   -2   -4   -3    0   -8    4  -10    8  -12   12  -13   16  -16
CE500   35    20  -20   24  -22   28  -23   32  -26   36  -29   40  -31   44  -33
CE500   36    48  -35   52  -37   56  -38   60  -40   64  -43   68  -47   72  -50
CE500   37    76  -52   80  -54   84  -58   88  -60   92  -64   96  -71  100  -74
CE500   38   104  -69  108  -60  112  -49  116  -45  120  -49  124  -54  128  -59
CE500   39   132  -64  136  -69  140  -74  144  -81  148  -88  152  -93  156  -98
CE500   3A   160 -102  164 -105  168 -110  172 -116  176 -118  180 -120  184 -124
CE500   3B   188 -128  192 -132  196 -134  200 -135  204 -137  208 -139  212 -143
CE500   3C   216 -146  220 -148  224 -149  228 -149  232 -149  236 -149  240 -150
```

(Continued)

(Sheet 14 of 31)

Table C2 (Continued)

```
CE500   41570311  500 83 -150             -80   49  -76   47  -72   46  -68   45
CE500   42  -64   41  -60   39  -56   35  -52   33  -48   30  -44   26  -40   21
CE500   43  -36   17  -32   13  -28    9  -24    5  -20    2  -16    0  -12   -3
CE500   44   -8   -5   -4   -7    0   -9    4  -11    8  -14   12  -16   16  -18
CE500   45   20  -20   24  -22   28  -24   32  -26   36  -28   40  -31   44  -32
CE500   46   48  -32   52  -33   56  -36   60  -40   64  -44   68  -47   72  -50
CE500   47   76  -52   80  -55   84  -59   88  -66   92  -72   96  -76  100  -78
CE500   48  104  -77  108  -72  112  -61  116  -49  120  -45  124  -46  128  -49
CE500   49  132  -53  136  -59  140  -66  144  -75  148  -82  152  -88  156  -94
CE500   4A  160  -99  164 -104  168 -109  172 -114  176 -117  180 -120  184 -124
CE500   4B  188 -126  192 -129  196 -132  200 -136  204 -136  208 -140  212 -141
CE500   4C  216 -143  220 -146  224 -148  228 -149  232 -149  236 -149  240 -150
CE500   4D  244 -150  248 -150

CE500   51570311 1000 91 -150             -80   49  -76   47  -72   46  -68   45
CE500   52  -64   41  -60   39  -56   35  -52   33  -48   30  -44   26  -40   22
CE500   53  -36   17  -32   11  -28    4  -24    1  -20   -1  -16   -2  -12   -5
CE500   54   -8   -9   -4  -12    0  -14    4  -14    8  -15   12  -18   16  -21
CE500   55   20  -23   24  -26   28  -29   32  -31   36  -30   40  -28   44  -27
CE500   56   48  -26   52  -29   56  -32   60  -36   64  -41   68  -47   72  -54
CE500   57   76  -57   80  -60   84  -62   88  -64   92  -69   96  -74  100  -79
CE500   58  104  -82  108  -82  112  -80  116  -74  120  -63  124  -49  128  -45
CE500   59  132  -45  136  -48  140  -51  144  -57  148  -63  152  -69  156  -77
CE500   5A  160  -88  164 -100  168 -106  172 -110  176 -113  180 -120  184 -121
CE500   5B  188 -125  192 -129  196 -132  200 -136  204 -136  208 -140  212 -142
CE500   5C  216 -144  220 -146  224 -147  228 -148  232 -148  236 -149  240 -150
CE500   5D  244 -150  248 -150  252 -150  256 -150  260 -150  264 -150  268 -150
CE500   5E  272 -150  276 -150  280 -150

CE500   61570311 1500 82 -150             -80   49  -76   47  -72   46  -68   45
CE500   62  -64   41  -60   39  -56   36  -52   34  -48   31  -44   27  -40   22
CE500   63  -36   17  -32    4  -28    1  -24   -1  -20   -3  -16   -6  -12   -9
CE500   64   -8  -11   -4  -12    0  -12    4  -12    8  -14   12  -16   16  -22
CE500   65   20  -29   24  -31   28  -31   32  -33   36  -33   40  -20   44  -19
CE500   66   48  -21   52  -26   56  -32   60  -37   64  -42   68  -47   72  -51
CE500   67   76  -54   80  -59   84  -63   88  -67   92  -69   96  -71  100  -76
CE500   68  104  -79  108  -81  112  -81  116  -80  120  -77  124  -71  128  -53
CE500   69  132  -43  136  -42  140  -46  144  -49  148  -54  152  -60  156  -65
CE500   6A  160  -74  164  -84  168  -94  172 -106  176 -111  180 -116  184 -119
CE500   6B  188 -123  192 -127  196 -131  200 -133  204 -135  208 -139  212 -140
CE500   6C  216 -141  220 -144  224 -146  228 -147  232 -148  236 -148  240 -150
CE500   6D  244 -150
```

(Continued)

(Sheet 15 of 31)

Table C2 (Continued)

```
CE500   71570311 2000 82 -150            -80   49  -76   47  -72   46  -68   45
CE500   72   -64   41  -60   39  -56   36  -52   34  -48   31  -44   26  -40   12
CE500   73   -36    5  -32    2  -28    0  -24   -3  -20   -5  -16   -7  -12   -9
CE500   74    -8  -11   -4  -13    0  -16    4  -18    8  -16   12  -15   16  -20
CE500   75    20  -28   24  -32   28  -33   32  -34   36  -34   40  -32   44  -26
CE500   76    48  -25   52  -27   56  -31   60  -35   64  -40   68  -45   72  -50
CE500   77    76  -54   80  -59   84  -63   88  -66   92  -68   96  -69  100  -70
CE500   78   104  -72  108  -77  112  -80  116  -82  120  -82  124  -82  128  -81
CE500   79   132  -74  136  -58  140  -45  144  -48  148  -50  152  -54  156  -59
CE500   7A   160  -64  164  -69  168  -77  172  -85  176  -94  180 -103  184 -111
CE500   7B   188 -119  192 -127  196 -127  200 -131  204 -133  208 -138  212 -139
CE500   7C   216 -140  220 -141  224 -146  228 -147  232 -147  236 -148  240 -149
CE500   7D   244 -150

CE500   81570311 3000 82 -150            -80   49  -76   47  -72   46  -68   45
CE500   82   -64   41  -60   39  -56   35  -52   33  -48   30  -44   12  -40    5
CE500   83   -36    1  -32   -1  -28   -3  -24   -5  -20   -7  -16   -9  -12  -12
CE500   84    -8  -14   -4  -15    0  -15    4  -15    8  -16   12  -20   16  -26
CE500   85    20  -30   24  -33   28  -35   32  -39   36  -39   40  -26   44  -20
CE500   86    48  -24   52  -29   56  -33   60  -36   64  -39   68  -43   72  -49
CE500   87    76  -54   80  -59   84  -63   88  -68   92  -69   96  -71  100  -74
CE500   88   104  -75  108  -78  112  -79  116  -81  120  -85  124  -88  128  -89
CE500   89   132  -89  136  -85  140  -77  144  -65  148  -52  152  -47  156  -49
CE500   8A   160  -52  164  -57  168  -62  172  -67  176  -74  180  -81  184  -90
CE500   8B   188  -99  192 -109  196 -120  200 -127  204 -132  208 -137  212 -139
CE500   8C   216 -142  220 -144  224 -147  228 -147  232 -148  236 -148  240 -149
CE500   8D   244 -150

CE500   91570311 4000 82 -150            -80   49  -76   47  -72   46  -68   45
CE500   92   -64   41  -60   39  -56   35  -52   33  -48   18  -44    5  -40    1
CE500   93   -36   -1  -32   -4  -28   -6  -24   -8  -20   -9  -16  -10  -12  -12
CE500   94    -8  -14   -4  -16    0  -18    4  -20    8  -20   12  -21   16  -22
CE500   95    20  -28   24  -32   28  -35   32  -39   36  -42   40  -36   44  -22
CE500   96    48  -23   52  -28   56  -31   60  -37   64  -41   68  -44   72  -50
CE500   97    76  -57   80  -64   84  -67   88  -69   92  -74   96  -75  100  -77
CE500   98   104  -78  108  -78  112  -78  116  -80  120  -82  124  -82  128  -83
CE500   99   132  -87  136  -90  140  -85  144  -77  148  -63  152  -50  156  -48
CE500   9A   160  -50  164  -55  168  -59  172  -62  176  -67  180  -74  184  -80
CE500   9B   188  -86  192  -94  196 -101  200 -112  204 -122  208 -133  212 -138
CE500   9C   216 -139  220 -141  224 -145  228 -146  232 -147  236 -148  240 -149
CE500   9D   244 -150
```

(Continued)

(Sheet 16 of 31)

Table C2 (Continued)

```
CE500 101570311 5000  82 -150            -80   49  -76   47  -72   46  -68   45
CE500 102  -64   41  -60   39  -56   36  -52   33  -48    7  -44    2  -40   -1
CE500 103  -36   -4  -32   -5  -28   -7  -24   -9  -20  -11  -16  -13  -12  -15
CE500 104   -8  -17   -4  -19    0  -21    4  -22    8  -22   12  -21   16  -21
CE500 105   20  -26   24  -30   28  -36   32  -44   36  -43   40  -30   44  -24
CE500 106   48  -26   52  -29   56  -34   60  -38   64  -42   68  -47   72  -53
CE500 107   76  -59   80  -66   84  -68   88  -70   92  -73   96  -75  100  -76
CE500 108  104  -79  108  -80  112  -80  116  -88  120  -88  124  -83  128  -82
CE500 109  132  -82  136  -89  140  -89  144  -86  148  -81  152  -70  156  -60
CE500 10A  160  -50  164  -49  168  -51  172  -54  176  -60  180  -66  184  -71
CE500 10B  188  -76  192  -82  196  -90  200  -99  204 -109  208 -120  212 -132
CE500 10C  216 -139  220 -141  224 -145  228 -148  232 -148  236 -149  240 -149
CE500 10D  244 -150

CE500 111570311 6000  82 -150            -80   49  -76   47  -72   46  -68   45
CE500 112  -64   41  -60   39  -56   35  -52    9  -48    3  -44    0  -40   -3
CE500 113  -36   -6  -32   -7  -28   -8  -24   -9  -20   -9  -16  -10  -12  -16
CE500 114   -8  -21   -4  -24    0  -24    4  -25    8  -26   12  -25   16  -25
CE500 115   20  -23   24  -21   28  -27   32  -34   36  -42   40  -42   44  -26
CE500 116   48  -23   52  -27   56  -32   60  -37   64  -41   68  -47   72  -56
CE500 117   76  -67   80  -69   84  -71   88  -71   92  -73   96  -77  100  -80
CE500 118  104  -82  108  -83  112  -84  116  -84  120  -88  124  -87  128  -83
CE500 119  132  -86  136  -89  140  -89  144  -93  148  -92  152  -82  156  -81
CE500 11A  160  -76  164  -66  168  -53  172  -48  176  -49  180  -54  184  -59
CE500 11B  188  -64  192  -69  196  -75  200  -84  204  -96  208 -109  212 -120
CE500 11C  216 -130  220 -139  224 -141  228 -147  232 -147  236 -148  240 -149
CE500 11D  244 -150

CE500 121570311 7000  79 -150            -68   43  -64   38  -60   11  -56    6
CE500 122  -52    3  -48   -1  -44   -4  -40   -6  -36   -8  -32   -9  -28  -10
CE500 123  -24  -10  -20   -9  -16  -14  -12  -20   -8  -23   -4  -25    0  -27
CE500 124    4  -29    8  -30   12  -29   16  -27   20  -30   24  -31   28  -39
CE500 125   32  -44   36  -35   40  -29   44  -25   48  -28   52  -31   56  -37
CE500 126   60  -42   64  -47   68  -53   72  -66   76  -72   80  -77   84  -78
CE500 127   88  -78   92  -79   96  -82  100  -87  104  -90  108  -92  112  -93
CE500 128  116  -93  120  -95  124  -93  128  -93  132  -92  136  -91  140  -89
CE500 129  144  -98  148  -87  152  -89  156  -95  160  -91  164  -86  168  -72
CE500 12A  172  -59  176  -51  180  -52  184  -57  188  -62  192  -67  196  -72
CE500 12B  200  -80  204  -88  208  -96  212 -107  216 -119  220 -128  224 -140
CE500 12C  228 -146  232 -149  236 -149  240 -150  244 -150
```

(Continued)

(Sheet 17 of 31)

Table C2 (Continued)

```
CE500  131570311 8000 79 -150                    -68    43   -64    38   -60     9   -56     3
CE500  132   -52     0   -48    -2   -44    -4   -40    -6   -36    -9   -32   -11   -28   -10
CE500  133   -24   -11   -20   -13   -16   -17   -12   -20    -8   -23    -4   -24     0   -25
CE500  134     4   -27     8   -28    12   -30    16   -31    20   -32    24   -33    28   -36
CE500  135    32   -39    36   -45    40   -36    44   -26    48   -28    52   -31    56   -36
CE500  136    60   -41    64   -44    68   -48    72   -54    76   -62    80   -77    84   -81
CE500  137    88   -83    92   -83    96   -85   100   -90   104   -93   108   -97   112   -97
CE500  138   116   -97   120   -98   124  -102   128   -98   132   -99   136   -99   140   -94
CE500  139   144   -96   148   -97   152   -99   156   -94   160   -92   164   -87   168   -76
CE500  13A   172   -54   176   -47   180   -49   184   -52   188   -60   192   -65   196   -70
CE500  13B   200   -74   204   -82   208   -90   212   -99   216  -108   220  -117   224  -128
CE500  13C   228  -137   232  -143   236  -147   240  -149   244  -150

CE500  141570311 9000 82 -150                    -76    46   -72    45   -68    22   -64    16
CE500  142   -60    11   -56     5   -52     0   -48    -4   -44    -7   -40   -10   -36   -11
CE500  143   -32   -12   -28   -13   -24   -14   -20   -15   -16   -15   -12   -16    -8   -18
CE500  144    -4   -20     0   -22     4   -26     8   -29    12   -30    16   -29    20   -27
CE500  145    24   -26    28   -28    32   -31    36   -39    40   -42    44   -45    48   -43
CE500  146    52   -39    56   -30    60   -32    64   -37    68   -43    72   -50    76   -54
CE500  147    80   -62    84   -77    88   -85    92   -88    96   -90   100   -92   104   -93
CE500  148   108   -95   112   -97   116   -99   120  -101   124  -102   128  -102   132  -101
CE500  149   136   -98   140   -97   144   -97   148   -97   152  -100   156   -97   160   -89
CE500  14A   164   -92   168   -91   172   -80   176   -65   180   -55   184   -50   188   -50
CE500  14B   192   -55   196   -60   200   -67   204   -72   208   -80   212   -85   216   -95
CE500  14C   220  -103   224  -115   228  -124   232  -138   236  -141   240  -145   244  -147
CE500  14D   248  -150

CE500  15157031110000 85 -150                    -80    48   -76    26   -72    22   -68    16
CE500  152   -64    11   -60     6   -56     1   -52    -2   -48    -5   -44    -8   -40   -11
CE500  153   -36   -12   -32   -14   -28   -15   -24   -16   -20   -18   -16   -19   -12   -21
CE500  154    -8   -22    -4   -23     0   -23     4   -22     8   -24    12   -27    16   -29
CE500  155    20   -30    24   -30    28   -30    32   -30    36   -28    40   -31    44   -40
CE500  156    48   -44    52   -35    56   -30    60   -32    64   -36    68   -40    72   -44
CE500  157    76   -48    80   -52    84   -68    88   -73    92   -88    96   -94   100   -96
CE500  158   104   -98   108  -100   112  -102   116  -102   120  -100   124   -99   128  -101
CE500  159   132  -101   136  -101   140   -97   144  -102   148  -101   152  -100   156   -91
CE500  15A   160   -95   164   -90   168   -95   172   -90   176   -87   180   -83   184   -68
CE500  15B   188   -54   192   -54   196   -58   200   -61   204   -67   208   -70   212   -75
CE500  15C   216   -80   220   -85   224   -95   228  -108   232  -119   236  -131   240  -141
CE500  15D   244  -144   248  -148   252  -149   256  -150
```

(Continued)

(Sheet 18 of 31)

Table C2 (Continued)

CASE 510

```
CE510   11570513    0 87 -150             -76   32  -72   22  -68   15  -64   10
CE510   12  -60    5  -56    1  -52   -1  -48   -5  -44   -8  -40  -11  -36  -14
CE510   13  -32  -16  -28  -17  -24  -18  -20  -20  -16  -21  -12  -23   -8  -23
CE510   14   -4  -25    0  -26    4  -26    8  -27   12  -29   16  -30   20  -32
CE510   15   24  -33   28  -32   32  -29   36  -31   40  -39   44  -46   48  -36
CE510   16   52  -36   56  -29   60  -32   64  -35   68  -40   72  -45   76  -49
CE510   17   80  -54   84  -61   88  -73   92  -86   96  -94  100  -95  104  -99
CE510   18  108  -99  112  -99  116 -102  120 -103  124  -99  128 -101  132 -102
CE510   19  136 -105  140 -101  144  -98  148 -102  152  -96  156  -97  160  -96
CE510   1A  164  -93  168  -93  172  -94  176  -84  180  -81  184  -64  188  -58
CE510   1B  192  -56  196  -58  200  -62  204  -67  208  -71  212  -76  216  -81
CE510   1C  220  -88  224  -95  228 -106  232 -117  236 -131  240 -141  244 -145
CE510   1D  248 -146  252 -148  256 -150  260 -150  264 -150  268 -150

CE510   21570513  100 86 -150             -80   46  -76   30  -72   24  -68   18
CE510   22  -64   12  -60    1  -56    2  -52   -6  -48   -7  -44  -10  -40  -13
CE510   23  -36  -14  -32  -16  -28  -16  -24  -17  -20  -20  -16  -21  -12  -21
CE510   24   -8  -21   -4  -25    0  -24    4  -25    8  -27   12  -27   16  -29
CE510   25   20  -31   24  -32   28  -31   32  -30   36  -31   40  -38   44  -45
CE510   26   48  -41   52  -34   56  -31   60  -31   64  -34   68  -39   72  -43
CE510   27   76  -48   80  -52   84  -61   88  -71   92  -84   96  -94  100  -93
CE510   28  104 -100  108  -99  112  -99  116 -101  120 -100  124 -101  128 -102
CE510   29  132 -100  136 -104  140 -100  144  -98  148 -101  152  -97  156  -96
CE510   2A  160  -97  164  -94  168  -93  172  -93  176  -83  180  -80  184  -64
CE510   2B  188  -58  192  -57  196  -57  200  -63  204  -68  208  -71  212  -75
CE510   2C  216  -81  220  -87  224  -95  228 -104  232 -111  236 -130  240 -141
CE510   2D  244 -144  248 -146  252 -149  256 -148  260 -150

CE510   31570513  300 86 -150             -80   47  -76   31  -72   26  -68   20
CE510   32  -64   15  -60    9  -56    2  -52   -5  -48  -10  -44  -11  -40  -10
CE510   33  -36  -10  -32  -11  -28  -13  -24  -14  -20  -16  -16  -19  -12  -22
CE510   34   -8  -24   -4  -35    0  -35    4  -27    8  -24   12  -26   16  -27
CE510   35   20  -29   24  -30   28  -31   32  -30   36  -40   40  -43   44  -45
CE510   36   48  -38   52  -33   56  -33   60  -35   64  -38   68  -42   72  -42
CE510   37   76  -45   80  -52   84  -60   88  -69   92  -81   96  -92  100  -95
CE510   38  104  -99  108  -98  112 -100  116 -101  120 -101  124 -101  128 -101
CE510   39  132 -100  136 -102  140 -100  144 -100  148 -101  152  -98  156  -97
CE510   3A  160  -95  164  -92  168  -95  172  -92  176  -82  180  -72  184  -60
CE510   3B  188  -59  192  -58  196  -62  200  -64  204  -69  208  -70  212  -77
CE510   3C  216  -80  220  -88  224  -95  228 -105  232 -119  236 -132  240 -141
CE510   3D  244 -145  248 -147  252 -149  256 -150  260 -150
```

(Continued)

Table C2 (Continued)

```
CE510   41570513  500 86 -150           -76   32  -72   27  -68   21  -64   16
CE510   42  -60   12  -56    6  -52    1  -48   -4  -44   -9  -40  -13  -36  -14
CE510   43  -32  -16  -28  -17  -24  -17  -20  -19  -16  -21  -12  -22   -8  -26
CE510   44   -4  -36    0  -36    4  -29    8  -26   12  -25   16  -26   20  -30
CE510   45   24  -30   28  -29   32  -41   36  -37   40  -47   44  -35   48  -33
CE510   46   52  -34   56  -35   60  -42   64  -40   68  -48   72  -46   76  -49
CE510   47   80  -57   84  -66   88  -76   92  -88   96  -96  100  -98  104  -99
CE510   48  108 -100  112 -100  116 -101  120 -101  124 -101  128 -101  132 -101
CE510   49  136 -103  140 -101  144 -100  148  -99  152  -98  156  -94  160  -92
CE510   4A  164  -94  168  -93  172  -93  176  -86  180  -69  184  -69  188  -63
CE510   4B  192  -58  196  -61  200  -69  204  -69  208  -70  212  -76  216  -81
CE510   4C  220  -88  224  -95  228 -105  232 -118  236 -133  240 -141  244 -145
CE510   4D  248 -147  252 -148  256 -149  260 -150  264 -150

CE510   51570513 1000 85 -177           -76   31  -72   28  -68   22  -64   18
CE510   52  -60   15  -56   11  -52    6  -48    2  -44   -3  -40   -7  -36   -9
CE510   53  -32  -14  -28  -17  -24  -19  -20  -21  -16  -23  -12  -24   -8  -26
CE510   54   -4  -29    0  -39    4  -29    8  -30   12  -32   16  -35   20  -25
CE510   55   24  -33   28  -33   32  -27   36  -30   40  -33   44  -32   48  -40
CE510   56   52  -40   56  -44   60  -39   64  -45   68  -43   72  -53   76  -55
CE510   57   80  -60   84  -65   88  -75   92  -88   96  -94  100  -96  104 -100
CE510   58  108 -100  112 -101  116 -102  120 -101  124 -101  128 -101  132 -102
CE510   59  136 -104  140 -100  144 -101  148 -100  152  -99  156  -96  160  -96
CE510   5A  164  -95  168  -94  172  -90  176  -75  180  -75  184  -65  188  -60
CE510   5B  192  -62  196  -64  200  -67  204  -67  208  -72  212  -77  216  -82
CE510   5C  220  -87  224  -95  228 -106  232 -120  236 -133  240 -141  244 -146
CE510   5D  248 -147  252 -149  256 -149  260 -150

CE510   61570513 1500 86 -150           -80   48  -76   31  -72   27  -68   22
CE510   62  -64   19  -60   16  -56   12  -52    1  -48    0  -44    0  -40   -7
CE510   63  -36  -10  -32  -11  -28  -13  -24  -16  -20  -20  -16  -25  -12  -25
CE510   64   -8  -26   -4  -26    0  -30    4  -38    8  -35   12  -28   16  -23
CE510   65   20  -22   24  -23   28  -23   32  -30   36  -31   40  -38   44  -38
CE510   66   48  -44   52  -40   56  -42   60  -41   64  -47   68  -46   72  -55
CE510   67   76  -63   80  -62   84  -70   88  -70   92  -85   96  -94  100  -96
CE510   68  104  -99  108 -100  112 -101  116 -102  120 -101  124 -101  128 -103
CE510   69  132 -101  136 -102  140 -100  144 -101  148 -101  152  -98  156  -96
CE510   6A  160  -95  164  -95  168  -94  172  -85  176  -76  180  -70  184  -70
CE510   6B  188  -63  192  -67  196  -66  200  -67  204  -69  208  -71  212  -75
CE510   6C  216  -82  220  -89  224  -95  228 -106  232 -118  236 -135  240 -143
CE510   6D  244 -145  248 -147  252 -149  256 -149  260 -150
```

(Continued)

(Sheet 20 of 31)

Table C2 (Continued)

```
CE510     71570513 2000 86 -150                 -76    32   -72    28   -68    22   -64    19
CE510     72   -60    16   -56    13   -52     9   -48     4   -44    -1   -40    -5   -36    -7
CE510     73   -32   -11   -28   -13   -24   -17   -20   -20   -16   -21   -12   -22    -8   -23
CE510     74    -4   -23     0   -37     4   -32     8   -31    12   -27    16   -23    20   -23
CE510     75    24   -23    28   -27    32   -30    36   -45    40   -38    44   -41    48   -39
CE510     76    52   -38    56   -48    60   -51    64   -46    68   -53    72   -60    76   -67
CE510     77    80   -70    84   -71    88   -73    92   -81    96   -92   100   -95   104   -99
CE510     78   108  -100   112  -100   116  -102   120  -101   124  -100   128  -103   132  -101
CE510     79   136  -102   140  -100   144  -100   148  -100   152   -98   156   -97   160   -96
CE510     7A   164   -97   168   -90   172   -79   176   -74   180   -73   184   -70   188   -67
CE510     7B   192   -69   196   -68   200   -70   204   -70   208   -71   212   -75   216   -80
CE510     7C   220   -87   224   -95   228  -105   232  -119   236  -132   240  -143   244  -145
CE510     7D   248  -147   252  -148   256  -149   260  -150   264  -150

CE510     81570513 3000 86 -150                 -80    46   -76    32   -72    27   -68    24
CE510     82   -64    23   -60    22   -56    20   -52    16   -48    11   -44     6   -40     1
CE510     83   -36    -3   -32    -7   -28   -10   -24   -14   -20   -16   -16   -18   -12   -20
CE510     84    -8   -21    -4   -22     0   -26     4   -32     8   -27    12   -27    16   -29
CE510     85    20   -32    24   -30    28   -32    32   -31    36   -47    40   -42    44   -43
CE510     86    48   -42    52   -53    56   -48    60   -58    64   -53    68   -61    72   -65
CE510     87    76   -64    80   -70    84   -79    88   -81    92   -83    96   -96   100  -100
CE510     88   104  -100   108  -101   112  -102   116  -103   120  -102   124  -102   128  -102
CE510     89   132  -101   136  -102   140  -101   144  -100   148  -100   152   -98   156   -97
CE510     8A   160   -98   164   -99   168   -85   172   -74   176   -77   180   -72   184   -73
CE510     8B   188   -71   192   -69   196   -69   200   -74   204   -76   208   -78   212   -79
CE510     8C   216   -81   220   -86   224   -95   228  -104   232  -120   236  -132   240  -144
CE510     8D   244  -147   248  -148   252  -149   256  -149   260  -150

CE510     91570513 4000 86 -150                 -80    48   -76    32   -72    28   -68    21
CE510     92   -64    26   -60    27   -56    24   -52    21   -48    17   -44    10   -40     6
CE510     93   -36     4   -32    -1   -28    -4   -24    -6   -20    -9   -16   -12   -12   -16
CE510     94    -8   -18    -4   -20     0   -23     4   -25     8   -28    12   -32    16   -35
CE510     95    20   -31    24   -32    28   -34    32   -37    36   -40    40   -42    44   -44
CE510     96    48   -48    52   -49    56   -60    60   -57    64   -66    68   -62    72   -75
CE510     97    76   -70    80   -74    84   -85    88   -87    92   -92    96   -96   100  -101
CE510     98   104  -101   108  -102   112  -105   116  -106   120  -104   124  -103   128  -104
CE510     99   132  -103   136  -102   140  -103   144  -100   148   -99   152   -98   156   -98
CE510     9A   160  -100   164   -89   168   -79   172   -77   176   -71   180   -74   184   -68
CE510     9B   188   -68   192   -71   196   -72   200   -72   204   -77   208   -78   212   -82
CE510     9C   216   -88   220   -91   224   -98   228   -99   232  -113   236  -132   240  -144
CE510     9D   244  -147   248  -149   252  -149   256  -149   260  -150
```

(Continued)

(Sheet 21 of 31)

Table C2 (Continued)

CE510	101570513	5000	85	-150				-80	47	-76	32	-72	32	-68	33
CE510	102	-64	33	-60	30	-56	26	-52	20	-48	19	-44	14	-40	8
CE510	103	-36	6	-32	1	-28	-1	-24	-3	-20	-7	-16	-10	-12	-13
CE510	104	-8	-17	-4	-20	0	-23	4	-25	8	-27	12	-30	16	-32
CE510	105	20	-31	24	-32	28	-34	32	-36	36	-39	40	-42	44	-52
CE510	106	48	-52	52	-50	56	-55	60	-68	64	-73	68	-81	72	-80
CE510	107	76	-82	80	-88	84	-87	88	-83	92	-98	96	-95	100	-100
CE510	108	104	-100	108	-100	112	-98	116	-105	120	-102	124	-99	128	-101
CE510	109	132	-106	136	-110	140	-103	144	-109	148	-103	152	-100	156	-97
CE510	10A	160	-88	164	-89	168	-86	172	-77	176	-73	180	-74	184	-76
CE510	10B	188	-70	192	-82	196	-79	200	-76	204	-80	208	-79	212	-84
CE510	10C	216	-91	220	-92	224	-98	228	-95	232	-111	236	-119	240	-139
CE510	10D	244	-147	248	-149	252	-149	256	-150						
CE510	111570513	6000	87	-150				-80	48	-76	33	-72	34	-68	36
CE510	112	-64	38	-60	37	-56	31	-52	24	-48	19	-44	17	-40	11
CE510	113	-36	8	-32	4	-28	-1	-24	-6	-20	-8	-16	-11	-12	-14
CE510	114	-8	-16	-4	-18	0	-21	4	-24	8	-27	12	-31	16	-33
CE510	115	20	-32	24	-32	28	-34	32	-37	36	-39	40	-41	44	-45
CE510	116	48	-59	52	-67	56	-68	60	-66	64	-68	68	-70	72	-81
CE510	117	76	-85	80	-93	84	-86	88	-89	92	-95	96	-89	100	-85
CE510	118	104	-93	108	-92	112	-94	116	-96	120	-95	124	-105	128	-99
CE510	119	132	-104	136	-109	140	-103	144	-107	148	-107	152	-103	156	-102
CE510	11A	160	-101	164	-90	168	-85	172	-81	176	-79	180	-74	184	-76
CE510	11B	188	-74	192	-75	196	-79	200	-80	204	-81	208	-91	212	-96
CE510	11C	216	-95	220	-98	224	-105	228	-103	232	-108	236	-112	240	-121
CE510	11D	244	-132	248	-149	252	-150	256	-148	260	-150	264	-150		
CE510	121570513	7000	88	-150				-80	48	-76	33	-72	34	-68	39
CE510	122	-64	41	-60	40	-56	35	-52	30	-48	25	-44	19	-40	14
CE510	123	-36	9	-32	4	-28	0	-24	-4	-20	-7	-16	-10	-12	-14
CE510	124	-8	-16	-4	-18	0	-21	4	-24	8	-28	12	-35	16	-35
CE510	125	20	-32	24	-32	28	-35	32	-38	36	-40	40	-42	44	-48
CE510	126	48	-45	52	-52	56	-61	60	-68	64	-84	68	-74	72	-73
CE510	127	76	-75	80	-76	84	-83	88	-95	92	-86	96	-86	100	-89
CE510	128	104	-91	108	-86	112	-97	116	-90	120	-95	124	-96	128	-100
CE510	129	132	-108	136	-103	140	-110	144	-112	148	-116	152	-114	156	-110
CE510	12A	160	-99	164	-96	168	-88	172	-71	176	-71	180	-78	184	-74
CE510	12B	188	-76	192	-78	196	-83	200	-88	204	-90	208	-91	212	-92
CE510	12C	216	-95	220	-110	224	-109	228	-119	232	-109	236	-120	240	-118
CE510	12D	244	-129	248	-130	252	-131	256	-145	260	-149	264	-149	268	-150

(Continued)

(Sheet 22 of 31)

Table C2 (Continued)

```
CE510   131570513 8000 89 -150             -80    47   -76    35   -72    36   -68    38
CE510   132   -64    41   -60    43   -56    40   -52    33   -48    26   -44    19   -40    15
CE510   133   -36    11   -32     5   -28     0   -24    -3   -20    -7   -16   -10   -12   -13
CE510   134    -8   -16    -4   -18     0   -22     4   -26     8   -28    12   -32    16   -37
CE510   135    20   -35    24   -33    28   -34    32   -37    36   -40    40   -41    44   -43
CE510   136    48   -51    52   -63    56   -55    60   -59    64   -64    68   -66    72   -67
CE510   137    76   -72    80   -86    84   -79    88   -84    92   -82    96   -88   100   -82
CE510   138   104   -92   108   -87   112   -93   116   -91   120   -94   124   -98   128  -107
CE510   139   132  -100   136  -107   140  -112   144  -114   148  -113   152  -121   156  -119
CE510   13A   160  -113   164  -111   168   -88   172   -87   176   -82   180   -82   184   -80
CE510   13B   188   -73   192   -84   196   -82   200   -90   204   -89   208   -86   212   -95
CE510   13C   216  -110   220  -112   224  -115   228  -114   232  -123   236  -123   240  -121
CE510   13D   244  -128   248  -129   252  -132   256  -136   260  -139   264  -149   268  -149
CE510   13E   272  -150

CE510   141570513 9000 90 -150             -80    47   -76    36   -72    37   -68    40
CE510   142   -64    41   -60    41   -56    37   -52    31   -48    26   -44    19   -40    16
CE510   143   -36    13   -32     6   -28     1   -24    -1   -20    -6   -16    -9   -12   -12
CE510   144    -8   -14    -4   -18     0   -22     4   -24     8   -26    12   -29    16   -36
CE510   145    20   -37    24   -34    28   -33    32   -35    36   -37    40   -40    44   -42
CE510   146    48   -47    52   -46    56   -52    60   -58    64   -68    68   -66    72   -77
CE510   147    76   -67    80   -77    84   -80    88   -77    92   -85    96   -92   100   -85
CE510   148   104   -87   108   -87   112   -89   116   -92   120  -103   124  -103   128  -103
CE510   149   132  -105   136  -112   140  -120   144  -125   148  -125   152  -123   156  -120
CE510   14A   160  -112   164   -99   168   -95   172   -80   176   -80   180   -76   184   -78
CE510   14B   188   -78   192   -85   196   -88   200   -85   204   -95   208  -100   212  -104
CE510   14C   216  -110   220  -112   224  -110   228  -120   232  -122   236  -125   240  -128
CE510   14D   244  -133   248  -135   252  -132   256  -132   260  -138   264  -139   268  -142
CE510   14E   272  -148   276  -150

CE510   15157051310000 92 -150             -80    47   -76    36   -72    39   -68    41
CE510   152   -64    42   -60    43   -56    40   -52    33   -48    38   -44    20   -40    17
CE510   153   -36    12   -32     8   -28     1   -24    -3   -20    -5   -16   -10   -12   -13
CE510   154    -8   -16    -4   -18     0   -20     4   -23     8   -25    12   -28    16   -31
CE510   155    20   -36    24   -35    28   -33    32   -33    36   -36    40   -38    44   -41
CE510   156    48   -47    52   -48    56   -48    60   -53    64   -58    68   -61    72   -70
CE510   157    76   -88    80   -74    84   -71    88   -75    92   -89    96   -90   100   -88
CE510   158   104   -91   108   -99   112  -101   116   -90   120   -98   124  -108   128  -111
CE510   159   132  -106   136  -116   140  -120   144  -125   148  -129   152  -127   156  -121
CE510   15A   160  -110   164  -103   168   -98   172   -92   176   -85   180   -80   184   -80
CE510   15B   188   -77   192   -80   196   -82   200   -94   204   -99   208  -103   212  -102
CE510   15C   216  -100   220  -108   224  -116   228  -123   232  -130   236  -129   240  -132
CE510   15D   244  -128   248  -136   252  -135   256  -133   260  -130   264  -140   268  -142
CE510   15E   272  -146   276  -147   280  -149   284  -150
```

(Continued)

(Sheet 23 of 31)

Table C2 (Continued)

```
CE510  16157051311000 92 -150              -80   47  -76   37  -72   38  -68   40
CE510  162  -64   43  -60   44  -56   41  -52   35  -48   27  -44   25  -40   16
CE510  163  -36   14  -32    1  -28    0  -24    0  -20    0  -16   -1  -12  -11
CE510  164   -8  -14   -4  -16    0  -18    4  -22    8  -25   12  -27   16  -32
CE510  165   20  -35   24  -32   28  -31   32  -34   36  -36   40  -38   44  -40
CE510  166   48  -45   52  -53   56  -54   60  -57   64  -60   68  -58   72  -61
CE510  167   76  -75   80  -77   84  -76   88  -80   92  -95   96  -86  100  -85
CE510  168  104  -83  108  -92  112 -105  116  -99  120 -107  124 -100  128 -108
CE510  169  132 -115  136 -120  140 -123  144 -123  148 -123  152 -123  156 -120
CE510  16A  160 -116  164 -106  168  -98  172  -90  176  -86  180  -82  184  -78
CE510  16B  188  -76  192  -87  196  -89  200  -94  204 -100  208  -99  212  -98
CE510  16C  216 -111  220 -112  224 -118  228 -119  232 -121  236 -125  240 -130
CE510  16D  244 -129  248 -134  252 -139  256 -137  260 -132  264 -135  268 -138
CE510  16E  272 -146  276 -148  280 -148  284 -150

CE510  17157051312000 93 -150              -80   47  -76   36  -72   39  -68   40
CE510  172  -64   42  -60   44  -56   42  -52   36  -48   30  -44   22  -40   18
CE510  173  -36   13  -32   10  -28    4  -24    1  -20   -3  -16   -6  -12   -9
CE510  174   -8  -11   -4  -14    0  -17    4  -21    8  -24   12  -25   16  -28
CE510  175   20  -31   24  -32   28  -31   32  -32   36  -34   40  -36   44  -38
CE510  176   48  -42   52  -40   56  -56   60  -60   64  -60   68  -62   72  -70
CE510  177   76  -85   80  -78   84  -74   88  -76   92  -79   96  -84  100 -100
CE510  178  104  -93  108  -98  112  -99  116  -99  120 -107  124 -112  128 -110
CE510  179  132 -111  136 -117  140 -122  144 -123  148 -124  152 -121  156 -118
CE510  17A  160 -111  164 -106  168 -101  172  -91  176  -87  180  -80  184  -80
CE510  17B  188  -82  192  -85  196  -89  200  -95  204  -99  208 -101  212 -105
CE510  17C  216 -113  220 -117  224 -120  228 -122  232 -124  236 -128  240 -130
CE510  17D  244 -133  248 -136  252 -129  256 -137  260 -134  264 -133  268 -138
CE510  17E  272 -140  276 -143  280 -149  284 -146  288 -150
```

CASE 600

```
CE600    11570604     0 76 -150            -72   47  -68   45  -64   42  -60   39
CE600    12  -56   37  -52   34  -48   31  -44   29  -40   26  -36   23  -32   21
CE600    13  -28   18  -24   15  -20   13  -16   10  -12    8   -8    5   -4    2
CE600    14    0    0    4   -1    8   -4   12   -6   16   -9   20  -12   24  -14
CE600    15   28  -17   32  -20   36  -22   40  -25   44  -28   48  -30   52  -33
CE600    16   56  -36   60  -38   64  -41   68  -44   72  -46   76  -49   80  -52
CE600    17   84  -54   88  -57   92  -60   96  -62  100  -65  104  -68  108  -70
CE600    18  112  -73  116  -76  120  -78  124  -81  128  -84  132  -86  136  -89
CE600    19  140  -92  144  -94  148  -97  152 -100  156 -102  160 -105  164 -108
CE600    1A  168 -110  172 -113  176 -116  180 -118  184 -121  188 -124  192 -126
CE600    1B  196 -129  200 -132  204 -134  208 -137  212 -140  216 -142  220 -145
CE600    1C  224 -148  228 -150
```

(Continued)

(Sheet 24 of 31)

Table C2 (Continued)

CE600	21570604	100	76	-150				-72	47	-68	45	-64	42	-60	39
CE600	22	-56	37	-52	34	-48	31	-44	30	-40	27	-36	22	-32	20
CE600	23	-28	21	-24	21	-20	20	-16	18	-12	15	-8	11	-4	6
CE600	24	0	1	4	-2	8	-4	12	-8	16	-13	20	-16	24	-19
CE600	25	28	-22	32	-25	36	-27	40	-29	44	-31	48	-33	52	-35
CE600	26	56	-36	60	-37	64	-39	68	-41	72	-43	76	-46	80	-50
CE600	27	84	-52	88	-55	92	-58	96	-62	100	-66	104	-68	108	-72
CE600	28	112	-77	116	-80	120	-82	124	-85	128	-89	132	-91	136	-92
CE600	29	140	-95	144	-98	148	-100	152	-102	156	-106	160	-108	164	-110
CE600	2A	168	-114	172	-115	176	-118	180	-119	184	-120	188	-123	192	-125
CE600	2B	196	-128	200	-131	204	-133	208	-136	212	-139	216	-143	220	-146
CE600	2C	224	-148	228	-150										
CE600	31570604	300	76	-150				-72	47	-68	45	-64	42	-60	39
CE600	32	-56	37	-52	34	-48	31	-44	30	-40	27	-36	22	-32	22
CE600	33	-28	23	-24	26	-20	25	-16	21	-12	17	-8	13	-4	8
CE600	34	0	3	4	-3	8	-7	12	-12	16	-15	20	-17	24	-20
CE600	35	28	-23	32	-26	36	-28	40	-30	44	-32	48	-34	52	-34
CE600	36	56	-35	60	-36	64	-37	68	-40	72	-46	76	-51	80	-51
CE600	37	84	-52	88	-57	92	-61	96	-64	100	-68	104	-68	108	-70
CE600	38	112	-72	116	-76	120	-81	124	-84	128	-84	132	-84	136	-87
CE600	39	140	-91	144	-95	148	-100	152	-104	156	-106	160	-109	164	-113
CE600	3A	168	-113	172	-116	176	-120	180	-123	184	-125	188	-126	192	-127
CE600	3B	196	-128	200	-131	204	-133	208	-136	212	-139	216	-143	220	-146
CE600	3C	224	-147	228	-150										
CE600	41570604	500	76	-150				-72	47	-68	45	-64	42	-60	39
CE600	42	-56	37	-52	34	-48	31	-44	30	-40	27	-36	22	-32	23
CE600	43	-28	23	-24	26	-20	25	-16	21	-12	17	-8	13	-4	9
CE600	44	0	4	4	-2	8	-7	12	-10	16	-14	20	-17	24	-20
CE600	45	28	-22	32	-25	36	-28	40	-30	44	-32	48	-35	52	-35
CE600	46	56	-36	60	-37	64	-38	68	-42	72	-51	76	-52	80	-50
CE600	47	84	-52	88	-58	92	-65	96	-68	100	-69	104	-68	108	-72
CE600	48	112	-72	116	-74	120	-76	124	-82	128	-83	132	-86	136	-88
CE600	49	140	-89	144	-95	148	-101	152	-105	156	-110	160	-113	164	-115
CE600	4A	168	-117	172	-116	176	-118	180	-122	184	-124	188	-126	192	-128
CE600	4B	196	-131	200	-133	204	-134	208	-136	212	-140	216	-143	220	-146
CE600	4C	224	-147	228	-150										
CE600	51570604	1000	76	-150				-72	47	-68	45	-64	42	-60	39
CE600	52	-56	37	-52	34	-48	31	-44	30	-40	27	-36	22	-32	22
CE600	53	-28	23	-24	26	-20	27	-16	25	-12	21	-8	17	-4	11
CE600	54	0	5	4	-1	8	-6	12	-11	16	-16	20	-20	24	-23
CE600	55	28	-25	32	-27	36	-29	40	-31	44	-32	48	-33	52	-34
CE600	56	56	-35	60	-36	64	-37	68	-40	72	-50	76	-54	80	-52
CE600	57	84	-57	88	-64	92	-69	96	-66	100	-60	104	-66	108	-72
CE600	58	112	-76	116	-81	120	-77	124	-74	128	-81	132	-90	136	-88
CE600	59	140	-85	144	-94	148	-103	152	-108	156	-111	160	-112	164	-114
CE600	5A	168	-114	172	-118	176	-122	180	-122	184	-125	188	-126	192	-128
CE600	5B	196	-131	200	-133	204	-134	208	-136	212	-140	216	-143	220	-146
CE600	5C	224	-147	228	-150										

(Continued)

(Sheet 25 of 31)

Table C2 (Continued)

```
CE600   61570604 1500 76 -150             -72   47  -68   45  -64   42  -60   39
CE600   62  -56   37  -52   34  -48   31  -44   30  -40   25  -36   21  -32   24
CE600   63  -28   24  -24   26  -20   28  -16   26  -12   22   -8   17   -4   12
CE600   64    0    6    4    0    8   -5   12   -9   16  -14   20  -17   24  -20
CE600   65   28  -24   32  -27   36  -29   40  -30   44  -31   48  -32   52  -33
CE600   66   56  -34   60  -35   64  -38   68  -44   72  -53   76  -56   80  -54
CE600   67   84  -61   88  -58   92  -52   96  -61  100  -71  104  -71  108  -77
CE600   68  112  -80  116  -81  120  -76  124  -80  128  -84  132  -89  136  -94
CE600   69  140  -92  144  -84  148  -95  152 -104  156 -110  160 -110  164 -115
CE600   6A  168 -114  172 -121  176 -119  180 -119  184 -121  188 -123  192 -125
CE600   6B  196 -128  200 -131  204 -134  208 -137  212 -139  216 -143  220 -146
CE600   6C  224 -148  228 -150

CE600   71570604 2000 76 -150             -72   47  -68   45  -64   42  -60   39
CE600   72  -56   37  -52   34  -48   31  -44   30  -40   25  -36   21  -32   24
CE600   73  -28   24  -24   26  -20   28  -16   27  -12   24   -8   19   -4   14
CE600   74    0    8    4    1    8   -3   12   -7   16  -13   20  -17   24  -20
CE600   75   28  -23   32  -26   36  -29   40  -30   44  -31   48  -32   52  -33
CE600   76   56  -35   60  -37   64  -46   68  -54   72  -57   76  -56   80  -56
CE600   77   84  -53   88  -49   92  -58   96  -73  100  -69  104  -73  108  -73
CE600   78  112  -78  116  -73  120  -83  124  -87  128  -89  132  -87  136  -92
CE600   79  140  -94  144  -90  148  -87  152  -98  156 -104  160 -113  164 -114
CE600   7A  168 -118  172 -119  176 -124  180 -125  184 -125  188 -128  192 -129
CE600   7B  196 -131  200 -133  204 -134  208 -137  212 -140  216 -143  220 -146
CE600   7C  224 -148  228 -150

CE600   81570604 3000 75 -150             -72   47  -68   45  -64   42  -60   39
CE600   82  -56   37  -52   34  -48   31  -44   30  -40   25  -36   21  -32   23
CE600   83  -28   24  -24   26  -20   28  -16   28  -12   26   -8   20   -4   14
CE600   84    0    8    4    1    8   -4   12   -8   16  -14   20  -20   24  -23
CE600   85   28  -25   32  -27   36  -30   40  -31   44  -31   48  -32   52  -33
CE600   86   56  -34   60  -34   64  -36   68  -44   72  -56   76  -60   80  -54
CE600   87   84  -55   88  -60   92  -66   96  -70  100  -67  104  -67  108  -74
CE600   88  112  -79  116  -83  120  -83  124  -84  128  -85  132  -88  136  -89
CE600   89  140  -92  144  -94  148  -98  152 -102  156  -97  160  -96  164 -107
CE600   8A  168 -119  172 -123  176 -124  180 -125  184 -124  188 -125  192 -128
CE600   8B  196 -131  200 -135  204 -138  208 -140  212 -143  216 -146  220 -150
CE600   8C  224 -150

CE600   91570604 4000 76 -150             -72   47  -68   45  -64   42  -60   39
CE600   92  -56   37  -52   34  -48   31  -44   30  -40   25  -36   21  -32   24
CE600   93  -28   24  -24   26  -20   28  -16   28  -12   25   -8   21   -4   14
CE600   94    0    7    4    0    8   -4   12   -9   16  -13   20  -18   24  -21
CE600   95   28  -23   32  -26   36  -29   40  -31   44  -31   48  -31   52  -32
CE600   96   56  -33   60  -35   64  -38   68  -43   72  -57   76  -61   80  -58
CE600   97   84  -61   88  -64   92  -68   96  -72  100  -72  104  -67  108  -70
CE600   98  112  -77  116  -75  120  -83  124  -79  128  -83  132  -84  136  -85
CE600   99  140  -91  144  -89  148  -93  152 -103  156 -110  160 -107  164 -113
CE600   9A  168 -104  172 -118  176 -122  180 -123  184 -124  188 -125  192 -127
CE600   9B  196 -132  200 -134  204 -136  208 -139  212 -141  216 -143  220 -145
CE600   9C  224 -148  228 -150
```

(Continued)

(Sheet 26 of 31)

Table C2 (Continued)

```
CE600  101570604 6000 77 -150             -72   47  -68   45  -64   42  -60   39
CE600  102  -56   37  -52   34  -48   31  -44   30  -40   25  -36   21  -32   24
CE600  103  -28   24  -24   26  -20   28  -16   29  -12   28   -8   21   -4   14
CE600  104    0    8    4   -7    8   -3   12   -8   16  -13   20  -18   24  -18
CE600  105   28  -24   32  -27   36  -29   40  -30   44  -30   48  -30   52  -31
CE600  106   56  -32   60  -34   64  -38   68  -44   72  -56   76  -62   80  -60
CE600  107   84  -58   88  -62   92  -69   96  -72  100  -73  104  -73  108  -67
CE600  108  112  -69  116  -79  120  -85  124  -88  128  -85  132  -87  136  -90
CE600  109  140  -91  144  -95  148  -89  152  -96  156 -107  160 -107  164 -111
CE600  10A  168 -116  172 -117  176 -119  180 -116  184 -125  188 -127  192 -127
CE600  10B  196 -131  200 -136  204 -140  208 -140  212 -139  216 -143  220 -146
CE600  10C  224 -147  228 -149  232 -150
```

CASE 610

```
CE610    11570614    0 76 -150            -72   47  -68   45  -64   42  -60   39
CE610    12  -56   37  -52   34  -48   31  -44   30  -40   25  -36   21  -32   24
CE610    13  -28   24  -24   26  -20   28  -16   29  -12   28   -8   21   -4   14
CE610    14    0    8    4   -7    8   -3   12   -8   16  -13   20  -18   24  -18
CE610    15   28  -24   32  -27   36  -29   40  -30   44  -30   48  -30   52  -31
CE610    16   56  -32   60  -34   64  -38   68  -44   72  -56   76  -62   80  -60
CE610    17   84  -58   88  -62   92  -69   96  -72  100  -73  104  -73  108  -67
CE610    18  112  -69  116  -79  120  -85  124  -88  128  -85  132  -87  136  -90
CE610    19  140  -91  144  -95  148  -89  152  -96  156 -107  160 -107  164 -111
CE610    1A  168 -116  172 -117  176 -119  180 -116  184 -125  188 -127  192 -127
CE610    1B  196 -131  200 -136  204 -140  208 -140  212 -139  216 -143  220 -146
CE610    1C  224 -147  228 -150

CE610    21570614   75 79 -149            -76   50  -72   49  -68   48  -64   47
CE610    22  -60   45  -56   43  -52   41  -48   39  -44   37  -40   33  -36   28
CE610    23  -32   25  -28   22  -24   18  -20   16  -16   13  -12    4   -8    4
CE610    24   -4    1    0   -3    4   -7    8  -10   12  -12   16  -15   20  -18
CE610    25   24  -22   28  -23   32  -25   36  -27   40  -29   44  -31   48  -32
CE610    26   52  -35   56  -38   60  -43   64  -47   68  -50   72  -49   76  -50
CE610    27   80  -57   84  -70   88  -81   92  -86   96  -81  100  -68  104  -60
CE610    28  108  -57  112  -58  116  -60  120  -64  124  -67  128  -70  132  -73
CE610    29  136  -77  140  -80  144  -85  148  -90  152  -95  156  -99  160 -106
CE610    2A  164 -108  168 -111  172 -114  176 -116  180 -119  184 -121  188 -122
CE610    2B  192 -128  196 -132  200 -135  204 -137  208 -138  212 -142  216 -145
CE610    2C  220 -146  224 -147  228 -149  232 -149  236 -150
```

(Continued)

(Sheet 27 of 31)

Table C2 (Continued)

CASE 700

```
CE700   11570620     0 81 -135                  -104    65  -100    65   -96    62   -92    59
CE700   12   -88    57   -84    55   -80    53   -76    50   -72    48   -68    45   -64    42
CE700   13   -60    40   -56    37   -52    34   -48    31   -44    29   -40    27   -36    25
CE700   14   -32    22   -28    19   -24    16   -20    14   -16    12   -12     9    -8     6
CE700   15    -4     3     0     0     4    -2     8    -4    12    -4    16    -8    20   -11
CE700   16    24   -14    28   -17    32   -20    36   -23    40   -25    44   -28    48   -31
CE700   17    52   -34    56   -37    60   -40    64   -43    68   -46    72   -48    76   -51
CE700   18    80   -53    84   -55    88   -58    92   -61    96   -63   100   -66   104   -69
CE700   19   108   -72   112   -75   116   -78   120   -81   124   -84   128   -87   132   -90
CE700   1A   136   -93   140   -96   144   -99   148  -102   152  -104   156  -108   160  -111
CE700   1B   164  -114   168  -118   172  -121   176  -125   180  -129   184  -132   188  -133
CE700   1C   192  -134   196  -135   200  -135   204  -135   208  -135   212  -135   216  -135

CE700   21570620   100 68 -135                   -68    46   -64    43   -60    40   -56    38
CE700   22   -52    36   -48    34   -44    31   -40    27   -36    25   -32    22   -28    20
CE700   23   -24    17   -20    11   -16     7   -12     8    -8     2    -4    -2     0    -4
CE700   24     4    -6     8    -9    12   -12    16   -14    20   -17    24   -20    28   -23
CE700   25    32   -24    36   -26    40   -28    44   -30    48   -35    52   -42    56   -45
CE700   26    60   -44    64   -44    68   -49    72   -65    76   -74    80   -78    84   -73
CE700   27    88   -58    92   -53    96   -51   100   -53   104   -55   108   -57   112   -59
CE700   28   116   -61   120   -63   124   -65   128   -71   132   -81   136   -89   140   -93
CE700   29   144   -97   148  -101   152  -105   156  -108   160  -111   164  -114   168  -118
CE700   2A   172  -121   176  -125   180  -128   184  -130   188  -131   192  -133   196  -134
CE700   2B   200  -135

CE700   31570620   300 73 -135                   -84    55   -80    54   -76    51   -72    49
CE700   32   -68    48   -64    47   -60    45   -56    42   -52    37   -48    32   -44    28
CE700   33   -40    25   -36    21   -32    18   -28    16   -24    10   -20     7   -16     4
CE700   34   -12     1    -8     0    -4    -3     0    -6     4    -9     8   -12    12   -15
CE700   35    16   -18    20   -21    24   -24    28   -26    32   -29    36   -31    40   -33
CE700   36    44   -35    48   -36    52   -38    56   -41    60   -49    64   -54    68   -54
CE700   37    72   -51    76   -50    80   -51    84   -60    88   -70    92   -78    96   -79
CE700   38   100   -66   104   -58   108   -55   112   -54   116   -55   120   -58   124   -61
CE700   39   128   -62   132   -66   136   -69   140   -74   144   -78   148   -86   152   -96
CE700   3A   156  -104   160  -108   164  -114   168  -118   172  -122   176  -125   180  -127
CE700   3B   184  -131   188  -133   192  -133   196  -133   200  -134   204  -135

CE700   41570620   500 73 -135                   -84    55   -80    52   -76    51   -72    50
CE700   42   -68    50   -64    49   -60    47   -56    43   -52    37   -48    31   -44    27
CE700   43   -40    23   -36    20   -32    18   -28    13   -24     9   -20     4   -16     3
CE700   44   -12     0    -8    -3    -4    -6     0   -10     4   -13     8   -16    12   -18
CE700   45    16   -21    20   -22    24   -24    28   -26    32   -28    36   -31    40   -33
CE700   46    44   -36    48   -37    52   -37    56   -39    60   -46    64   -55    68   -56
CE700   47    72   -53    76   -50    80   -49    84   -56    88   -68    92   -77    96   -84
CE700   48   100   -83   104   -70   108   -61   112   -57   116   -56   120   -57   124   -59
CE700   49   128   -61   132   -63   136   -66   140   -70   144   -74   148   -77   152   -81
CE700   4A   156   -88   160   -98   164  -112   168  -116   172  -123   176  -127   180  -129
CE700   4B   184  -132   188  -133   192  -133   196  -133   200  -134   204  -135
```

(Continued)

(Sheet 28 of 31)

Table C2 (Continued)

```
CE700    51570620 1000 73 -135             -84   55  -80   54  -76   52  -72   51
CE700    52  -68   51  -64   51  -60   49  -56   43  -52   37  -48   31  -44   26
CE700    53  -40   21  -36   17  -32   13  -28    8  -24    4  -20   -1  -16   -6
CE700    54  -12   -9   -8  -13   -4  -16    0  -19    4  -22    8  -23   12  -24
CE700    55   16  -25   20  -26   24  -28   28  -30   32  -31   36  -33   40  -36
CE700    56   44  -37   48  -41   52  -48   56  -52   60  -52   64  -48   68  -45
CE700    57   72  -45   76  -48   80  -54   84  -57   88  -59   92  -59   96  -59
CE700    58  100  -58  104  -61  108  -67  112  -81  116  -90  120  -93  124  -86
CE700    59  128  -73  132  -66  136  -63  140  -62  144  -61  148  -63  152  -65
CE700    5A  156  -66  160  -70  164  -78  168  -90  172 -103  176 -116  180 -124
CE700    5B  184 -131  188 -133  192 -134  196 -134  200 -134  204 -135

CE700    61570620 1500 74 -135             -84   56  -80   54  -76   52  -72   52
CE700    62  -68   52  -64   51  -60   48  -56   43  -52   37  -48   31  -44   24
CE700    63  -40   17  -36   12  -32    7  -28    2  -24   -3  -20   -9  -16  -13
CE700    64  -12  -16   -8  -19   -4  -22    0  -25    4  -28    8  -28   12  -30
CE700    65   16  -30   20  -30   24  -31   28  -32   32  -33   36  -34   40  -35
CE700    66   44  -36   48  -39   52  -42   56  -45   60  -46   64  -47   68  -47
CE700    67   72  -47   76  -48   80  -49   84  -51   88  -56   92  -60   96  -66
CE700    68  100  -67  104  -67  108  -64  112  -63  116  -68  120  -80  124  -90
CE700    69  128  -91  132  -84  136  -74  140  -66  144  -61  148  -61  152  -62
CE700    6A  156  -67  160  -71  164  -75  168  -78  172  -84  176  -95  180 -107
CE700    6B  184 -122  188 -133  192 -133  196 -133  200 -134  204 -134  208 -135

CE700    71570620 2000 75 -133             -84   56  -80   55  -76   55  -72   55
CE700    72  -68   52  -64   42  -60   34  -56   28  -52   23  -48   17  -44   12
CE700    73  -40    7  -36    2  -32   -1  -28   -5  -24   -8  -20  -11  -16  -14
CE700    74  -12  -16   -8  -18   -4  -21    0  -23    4  -25    8  -26   12  -27
CE700    75   16  -28   20  -29   24  -30   28  -32   32  -33   36  -35   40  -37
CE700    76   44  -39   48  -41   52  -43   56  -45   60  -46   64  -48   68  -49
CE700    77   72  -51   76  -53   80  -55   84  -57   88  -58   92  -59   96  -59
CE700    78  100  -59  104  -61  108  -63  112  -66  116  -68  120  -75  124  -84
CE700    79  128  -87  132  -86  136  -81  140  -77  144  -73  148  -70  152  -69
CE700    7A  156  -69  160  -70  164  -71  168  -73  172  -76  176  -79  180  -81
CE700    7B  184  -86  188  -97  192 -112  196 -124  200 -131  204 -133  208 -133
CE700    7C  212 -135

CE700    81570620 3000 78 -135             -88   58  -84   56  -80   56  -76   56
CE700    82  -72   40  -68   33  -64   27  -60   22  -56   16  -52   10  -48    4
CE700    83  -44    0  -40   -4  -36   -7  -32  -11  -28  -14  -24  -17  -20  -20
CE700    84  -16  -22  -12  -24   -8  -25   -4  -25    0  -26    4  -26    8  -26
CE700    85   12  -26   16  -27   20  -28   24  -29   28  -31   32  -33   36  -35
CE700    86   40  -37   44  -39   48  -41   52  -43   56  -44   60  -45   64  -46
CE700    87   68  -48   72  -51   76  -54   80  -55   84  -55   88  -55   92  -55
CE700    88   96  -56  100  -57  104  -59  108  -62  112  -64  116  -67  120  -70
CE700    89  124  -73  128  -74  132  -75  136  -75  140  -70  144  -68  148  -70
CE700    8A  152  -70  156  -68  160  -68  164  -69  168  -70  172  -72  176  -75
CE700    8B  180  -78  184  -81  188  -86  192  -91  196 -101  200 -120  204 -132
CE700    8C  208 -133  212 -134  216 -135  220 -135
```

(Continued)

(Sheet 29 of 31)

Table C2 (Continued)

CE700	91570620		4000	77	-135			-84	57	-80	56	-76	56	-72	41
CE700	92	-68	34	-64	27	-60	20	-56	13	-52	7	-48	2	-44	-2
CE700	93	-40	-7	-36	-11	-32	-14	-28	-17	-24	-19	-20	-20	-16	-21
CE700	94	-12	-22	-8	-23	-4	-25	0	-27	4	-39	8	-35	12	-29
CE700	95	16	-25	20	-24	24	-26	28	-26	32	-28	36	-30	40	-32
CE700	96	44	-34	48	-36	52	-38	56	-38	60	-40	64	-41	68	-42
CE700	97	72	-43	76	-45	80	-46	84	-47	88	-47	92	-49	96	-52
CE700	98	100	-52	104	-52	108	-53	112	-55	116	-64	120	-76	124	-83
CE700	99	128	-81	132	-71	136	-64	140	-61	144	-61	148	-62	152	-65
CE700	9A	156	-68	160	-71	164	-75	168	-78	172	-83	176	-87	180	-91
CE700	9B	184	-97	188	-106	192	-115	196	-121	200	-128	204	-132	208	-134
CE700	9C	212	-135	216	-135	220	-135								

CE700	101570620		5000	78	-135			-84	56	-80	56	-76	56	-72	41
CE700	102	-68	34	-64	27	-60	21	-56	16	-52	12	-48	7	-44	2
CE700	103	-40	-2	-36	-6	-32	-10	-28	-13	-24	-15	-20	-18	-16	-19
CE700	104	-12	-21	-8	-22	-4	-23	0	-23	4	-24	8	-26	12	-32
CE700	105	16	-31	20	-25	24	-26	28	-28	32	-30	36	-31	40	-33
CE700	106	44	-34	48	-36	52	-38	56	-40	60	-42	64	-44	68	-46
CE700	107	72	-47	76	-49	80	-49	84	-50	88	-51	92	-53	96	-56
CE700	108	100	-59	104	-59	108	-58	112	-58	116	-64	120	-71	124	-71
CE700	109	128	-64	132	-59	136	-58	140	-59	144	-61	148	-64	152	-67
CE700	10A	156	-70	160	-74	164	-78	168	-83	172	-88	176	-94	180	-101
CE700	10B	184	-108	188	-116	192	-123	196	-126	200	-129	204	-132	208	-134
CE700	10C	212	-135	216	-135	220	-135	224	-135						

CE700	111570620		6000	74	-135			-84	56	-80	55	-76	54	-72	42
CE700	112	-68	35	-64	29	-60	23	-56	18	-52	12	-48	8	-44	5
CE700	113	-40	2	-36	-3	-32	-7	-28	-9	-24	-11	-20	-14	-16	-16
CE700	114	-12	-18	-8	-20	-4	-21	0	-22	4	-34	8	-30	12	-25
CE700	115	16	-23	20	-24	24	-29	28	-28	32	-28	36	-30	40	-32
CE700	116	44	-35	48	-36	52	-38	56	-40	60	-42	64	-44	68	-46
CE700	117	72	-48	76	-49	80	-50	84	-51	88	-53	92	-55	96	-57
CE700	118	100	-62	104	-64	108	-62	112	-60	116	-66	120	-74	124	-75
CE700	119	128	-68	132	-61	136	-59	140	-58	144	-60	148	-62	152	-64
CE700	11A	156	-68	160	-72	164	-75	168	-79	172	-84	176	-90	180	-98
CE700	11B	184	-107	188	-115	192	-123	196	-132	200	-135	204	-135	208	-135

CE700	121570620		7000	77	-135			-96	62	-92	60	-88	59	-84	57
CE700	122	-80	57	-76	50	-72	40	-68	36	-64	30	-60	26	-56	18
CE700	123	-52	12	-48	8	-44	8	-40	5	-36	-4	-32	-5	-28	-8
CE700	124	-24	-10	-20	-13	-16	-16	-12	-18	-8	-20	-4	-22	0	-23
CE700	125	4	-24	8	-33	12	-30	16	-27	20	-27	24	-34	28	-29
CE700	126	32	-28	36	-31	40	-33	44	-34	48	-35	52	-36	56	-39
CE700	127	60	-42	64	-43	68	-46	72	-50	76	-50	80	-49	84	-51
CE700	128	88	-53	92	-56	96	-61	100	-70	104	-70	108	-65	112	-59
CE700	129	116	-59	120	-67	124	-75	128	-75	132	-62	136	-59	140	-59
CE700	12A	144	-59	148	-60	152	-62	156	-67	160	-69	164	-75	168	-79
CE700	12B	172	-83	176	-89	180	-98	184	-111	188	-121	192	-131	196	-132
CE700	12C	200	-133	204	-134	208	-135								

(Continued)

(Sheet 30 of 31)

Table C2 (Concluded)

```
CE700  131570620 8000 78 -135                -96   62  -92   60  -88   59  -84   57
CE700  132    -80   57  -76   51  -72   42  -68   37  -64   30  -60   24  -56   19
CE700  133    -52   15  -48    7  -44    7  -40    3  -36   -2  -32   -6  -28  -10
CE700  134    -24  -13  -20  -16  -16  -18  -12  -19   -8  -20   -4  -21    0  -38
CE700  135      4  -35    8  -26   12  -24   16  -24   20  -24   24  -25   28  -26
CE700  136     32  -28   36  -30   40  -32   44  -34   48  -36   52  -37   56  -40
CE700  137     60  -44   64  -46   68  -48   72  -50   76  -50   80  -49   84  -50
CE700  138     88  -52   92  -55   96  -60  100  -64  104  -64  108  -60  112  -59
CE700  139    116  -62  120  -72  124  -77  128  -68  132  -61  136  -59  140  -59
CE700  13A    144  -59  148  -61  152  -63  156  -67  160  -70  164  -75  168  -80
CE700  13B    172  -84  176  -90  180  -99  184 -111  188 -122  192 -131  196 -132
CE700  13C    200 -132  204 -133  208 -134  212 -135

CE700  141570620 9000 76 -135                -96   62  -92   60  -88   59  -84   58
CE700  142    -80   57  -76   49  -72   43  -68   36  -64   29  -60   23  -56   18
CE700  143    -52   14  -48    9  -44    3  -40    1  -36   -3  -32   -7  -28  -12
CE700  144    -24  -15  -20  -19  -16  -21  -12  -22   -8  -23   -4  -24    0  -40
CE700  145      4  -42    8  -31   12  -26   16  -23   20  -23   24  -24   28  -26
CE700  146     32  -28   36  -29   40  -31   44  -33   48  -34   52  -36   56  -38
CE700  147     60  -41   64  -44   68  -45   72  -47   76  -48   80  -48   84  -48
CE700  148     88  -50   92  -53   96  -60  100  -62  104  -61  108  -58  112  -58
CE700  149    116  -61  120  -69  124  -72  128  -63  132  -59  136  -58  140  -59
CE700  14A    144  -60  148  -61  152  -65  156  -68  160  -71  164  -76  168  -80
CE700  14B    172  -87  176  -95  180 -106  184 -116  188 -125  192 -131  196 -133
CE700  14C    200 -134  204 -135

CE700  15157062010000 76 -135                -88   59  -84   57  -80   57  -76   49
CE700  152    -72   43  -68   36  -64   28  -60   23  -56   18  -52   13  -48   11
CE700  153    -44    3  -40    1  -36   -5  -32   -8  -28  -13  -24  -16  -20  -19
CE700  154    -16  -20  -12  -22   -8  -24   -4  -25    0  -45    4  -47    8  -36
CE700  155     12  -25   16  -22   20  -22   24  -23   28  -25   32  -27   36  -28
CE700  156     40  -30   44  -32   48  -34   52  -36   56  -38   60  -40   64  -43
CE700  157     68  -45   72  -46   76  -47   80  -47   84  -48   88  -50   92  -54
CE700  158     96  -59  100  -61  104  -61  108  -59  112  -58  116  -62  120  -69
CE700  159    124  -69  128  -62  132  -59  136  -58  140  -59  144  -60  148  -62
CE700  15A    152  -65  156  -68  160  -71  164  -76  168  -81  172  -89  176  -97
CE700  15B    180 -107  184 -117  188 -124  192 -130  196 -133  200 -133  204 -132
CE700  15C    208 -134  212 -135
```

(Sheet 31 of 31)

Table C3

Profile Survey Data: 0.40-mm Sand

CASE 101

```
CE101   11620702     0 79 -150              -96   47  -92   47  -88   45  -84   44
CE101   12   -80   43  -76   42  -72   42  -68   42  -64   40  -60   37  -56   35
CE101   13   -52   31  -48   28  -44   26  -40   24  -36   21  -32   18  -28   15
CE101   14   -24   13  -20   11  -16    8  -12    6   -8    4   -4    2    0    0
CE101   15     4   -2    8   -5   12   -8   16  -10   20  -13   24  -15   28  -20
CE101   16    32  -22   36  -24   40  -27   44  -29   48  -33   52  -36   56  -40
CE101   17    60  -43   64  -45   68  -47   72  -50   76  -53   80  -56   84  -59
CE101   18    88  -61   92  -64   96  -67  100  -70  104  -72  108  -75  112  -78
CE101   19   116  -80  120  -83  124  -86  128  -89  132  -91  136  -94  140  -97
CE101   1A   144 -100  148 -103  152 -105  156 -107  160 -109  164 -112  168 -114
CE101   1B   172 -117  176 -120  180 -122  184 -125  188 -128  192 -130  196 -133
CE101   1C   200 -134  204 -136  208 -138  212 -140  216 -143

CE101   21620702   100 79 -150              -96   47  -92   47  -88   45  -84   44
CE101   22   -80   43  -76   42  -72   42  -68   40  -64   37  -60   35  -56   32
CE101   23   -52   29  -48   27  -44   26  -40   25  -36   23  -32   23  -28   20
CE101   24   -24   18  -20   18  -16   17  -12   15   -8   12   -4    6    0    0
CE101   25     4   -4    8  -10   12  -14   16  -18   20  -22   24  -23   28  -25
CE101   26    32  -27   36  -29   40  -33   44  -36   48  -42   52  -49   56  -57
CE101   27    60  -52   64  -44   68  -42   72  -44   76  -46   80  -49   84  -57
CE101   28    88  -61   92  -64   96  -70  100  -71  104  -76  108  -79  112  -84
CE101   29   116  -85  120  -87  124  -89  128  -93  132  -94  136  -97  140 -100
CE101   2A   144 -101  148 -105  152 -108  156 -110  160 -112  164 -114  168 -118
CE101   2B   172 -121  176 -122  180 -124  184 -127  188 -130  192 -133  196 -135
CE101   2C   200 -137  204 -139  208 -140  212 -140  216 -145

CE101   31620702   300 79 -150              -96   47  -92   47  -88   45  -84   44
CE101   32   -80   43  -76   42  -72   42  -68   40  -64   37  -60   35  -56   32
CE101   33   -52   30  -48   30  -44   29  -40   28  -36   27  -32   25  -28   23
CE101   34   -24   20  -20   18  -16   16  -12   13   -8   10   -4    5    0    1
CE101   35     4   -3    8   -7   12  -10   16  -13   20  -16   24  -18   28  -19
CE101   36    32  -21   36  -26   40  -31   44  -32   48  -35   52  -47   56  -56
CE101   37    60  -52   64  -44   68  -41   72  -44   76  -48   80  -54   84  -64
CE101   38    88  -67   92  -72   96  -75  100  -77  104  -82  108  -87  112  -88
CE101   39   116  -89  120  -91  124  -93  128  -94  132  -96  136  -98  140 -102
CE101   3A   144 -103  148 -107  152 -109  156 -112  160 -115  164 -115  168 -119
CE101   3B   172 -122  176 -122  180 -124  184 -129  188 -132  192 -134  196 -137
CE101   3C   200 -138  204 -140  208 -142  212 -144  216 -146
```

(Continued)

(Sheet 1 of 27)

Table C3 (Continued)

```
CE101   41620702  500 79 -150            -96   47  -92   47  -88   45  -84   44
CE101   42   -80   43  -76   42  -72   42  -68   40  -64   37  -60   35  -56   33
CE101   43   -52   32  -48   30  -44   30  -40   30  -36   31  -32   29  -28   28
CE101   44   -24   26  -20   23  -16   21  -12   17   -8   14   -4   10    0    5
CE101   45     4    0    8   -4   12   -9   16  -14   20  -18   24  -21   28  -22
CE101   46    32  -24   36  -26   40  -32   44  -36   48  -38   52  -43   56  -53
CE101   47    60  -56   64  -50   68  -44   72  -43   76  -45   80  -49   84  -52
CE101   48    88  -60   92  -68   96  -76  100  -80  104  -86  108  -87  112  -89
CE101   49   116  -92  120  -94  124  -94  128  -97  132 -100  136 -101  140 -104
CE101   4A   144 -106  148 -108  152 -111  156 -113  160 -116  164 -119  168 -121
CE101   4B   172 -123  176 -126  180 -128  184 -129  188 -130  192 -133  196 -136
CE101   4C   200 -139  204 -141  208 -142  212 -143  216 -148

CE101   51620702 1000 79 -150            -96   47  -92   47  -88   45  -84   44
CE101   52   -80   43  -76   42  -72   42  -68   40  -64   37  -60   35  -56   33
CE101   53   -52   33  -48   34  -44   34  -40   34  -36   35  -32   37  -28   37
CE101   54   -24   35  -20   32  -16   29  -12   26   -8   21   -4   17    0   11
CE101   55     4    5    8    0   12   -5   16  -11   20  -17   24  -21   28  -25
CE101   56    32  -27   36  -28   40  -29   44  -32   48  -33   52  -37   56  -43
CE101   57    60  -54   64  -58   68  -53   72  -48   76  -46   80  -48   84  -52
CE101   58    88  -57   92  -61   96  -67  100  -77  104  -87  108  -91  112  -94
CE101   59   116  -98  120 -101  124 -103  128 -106  132 -107  136 -108  140 -110
CE101   5A   144 -112  148 -114  152 -116  156 -119  160 -121  164 -123  168 -124
CE101   5B   172 -126  176 -128  180 -130  184 -132  188 -133  192 -135  196 -137
CE101   5C   200 -140  204 -143  208 -145  212 -146  216 -146

CE101   61620702 1200 79 -150            -96   47  -92   47  -88   45  -84   44
CE101   62   -80   43  -76   42  -72   42  -68   40  -64   38  -60   35  -56   33
CE101   63   -52   33  -48   34  -44   35  -40   35  -36   37  -32   39  -28   40
CE101   64   -24   37  -20   33  -16   29  -12   25   -8   21   -4   17    0   11
CE101   65     4    5    8    0   12   -6   16  -12   20  -16   24  -20   28  -23
CE101   66    32  -26   36  -28   40  -30   44  -34   48  -38   52  -39   56  -44
CE101   67    60  -51   64  -51   68  -45   72  -43   76  -45   80  -48   84  -52
CE101   68    88  -56   92  -61   96  -68  100  -76  104  -85  108  -90  112  -96
CE101   69   116 -101  120 -103  124 -105  128 -107  132 -110  136 -110  140 -112
CE101   6A   144 -113  148 -115  152 -116  156 -120  160 -123  164 -125  168 -127
CE101   6B   172 -127  176 -129  180 -132  184 -132  188 -134  192 -136  196 -138
CE101   6C   200 -139  204 -143  208 -145  212 -146  216 -148

CE101   71620702 1500 79 -150            -96   47  -92   47  -88   45  -84   44
CE101   72   -80   43  -76   42  -72   42  -68   40  -64   38  -60   35  -56   33
CE101   73   -52   33  -48   34  -44   35  -40   35  -36   37  -32   41  -28   42
CE101   74   -24   38  -20   35  -16   31  -12   28   -8   24   -4   19    0   13
CE101   75     4    7    8    2   12   -3   16  -10   20  -17   24  -21   28  -26
CE101   76    32  -29   36  -30   40  -31   44  -32   48  -35   52  -38   56  -40
CE101   77    60  -46   64  -55   68  -55   72  -47   76  -45   80  -46   84  -49
CE101   78    88  -53   92  -58   96  -63  100  -68  104  -73  108  -87  112  -98
CE101   79   116 -102  120 -104  124 -109  128 -112  132 -113  136 -114  140 -116
CE101   7A   144 -115  148 -117  152 -120  156 -121  160 -123  164 -125  168 -126
CE101   7B   172 -129  176 -130  180 -134  184 -135  188 -136  192 -137  196 -138
CE101   7C   200 -142  204 -145  208 -147  212 -148  216 -149
```

(Continued)

(Sheet 2 of 27)

Table C3 (Continued)

CE101	81620702		1900	79	-150			-96	47	-92	47	-88	45	-84	44
CE101	82	-80	43	-76	42	-72	42	-68	41	-64	38	-60	35	-56	34
CE101	83	-52	34	-48	34	-44	35	-40	35	-36	39	-32	43	-28	43
CE101	84	-24	39	-20	36	-16	33	-12	29	-8	26	-4	21	0	15
CE101	85	4	8	8	2	12	-3	16	-8	20	-15	24	-22	28	-26
CE101	86	32	-31	36	-32	40	-33	44	-35	48	-41	52	-45	56	-43
CE101	87	60	-41	64	-45	68	-49	72	-47	76	-43	80	-44	84	-47
CE101	88	88	-51	92	-55	96	-60	100	-64	104	-70	108	-78	112	-93
CE101	89	116	-103	120	-109	124	-112	128	-110	132	-112	136	-115	140	-117
CE101	8A	144	-120	148	-122	152	-123	156	-123	160	-125	164	-130	168	-130
CE101	8B	172	-130	176	-130	180	-134	184	-135	188	-137	192	-141	196	-142
CE101	8C	200	-142	204	-145	208	-146	212	-146	216	-149				
CE101	91620702		2000	79	-150			-96	47	-92	47	-88	45	-84	44
CE101	92	-80	43	-76	42	-72	42	-68	40	-64	38	-60	36	-56	34
CE101	93	-52	35	-48	36	-44	36	-40	36	-36	40	-32	44	-28	43
CE101	94	-24	40	-20	37	-16	34	-12	31	-8	27	-4	22	0	16
CE101	95	4	9	8	2	12	-3	16	-9	20	-16	24	-22	28	-26
CE101	96	32	-29	36	-31	40	-33	44	-37	48	-45	52	-45	56	-42
CE101	97	60	-40	64	-44	68	-47	72	-44	76	-42	80	-43	84	-46
CE101	98	88	-50	92	-55	96	-59	100	-64	104	-70	108	-76	112	-89
CE101	99	116	-102	120	-105	124	-109	128	-115	132	-117	136	-118	140	-121
CE101	9A	144	-122	148	-121	152	-123	156	-126	160	-127	164	-128	168	-130
CE101	9B	172	-131	176	-132	180	-137	184	-138	188	-140	192	-142	196	-143
CE101	9C	200	-145	204	-145	208	-145	212	-146	216	-148				
CE101	101620702		2550	79	-150			-96	47	-92	47	-88	45	-84	44
CE101	102	-80	43	-76	43	-72	42	-68	40	-64	38	-60	35	-56	34
CE10	103	-52	34	-48	35	-44	37	-40	38	-36	41	-32	43	-28	42
CE101	104	-24	39	-20	35	-16	32	-12	29	-8	26	-4	20	0	16
CE101	105	4	10	8	4	12	-2	16	-8	20	-15	24	-20	28	-25
CE101	106	32	-29	36	-32	40	-32	44	-34	48	-39	52	-45	56	-44
CE101	107	60	-41	64	-41	68	-46	72	-48	76	-44	80	-44	84	-46
CE101	108	88	-48	92	-53	96	-58	100	-62	104	-67	108	-71	112	-85
CE101	109	116	-100	120	-108	124	-111	128	-114	132	-117	136	-117	140	-122
CE101	10A	144	-124	148	-125	152	-126	156	-127	160	-129	164	-130	168	-132
CE101	10B	172	-133	176	-135	180	-138	184	-140	188	-142	192	-144	196	-146
CE101	10C	200	-145	204	-146	208	-146	212	-147	216	-145				
CE101	111620702		3000	79	-150			-96	47	-92	47	-88	45	-84	44
CE101	112	-80	43	-76	43	-72	42	-68	40	-64	38	-60	35	-56	34
CE101	113	-52	34	-48	35	-44	37	-40	39	-36	41	-32	43	-28	42
CE101	114	-24	39	-20	36	-16	32	-12	29	-8	25	-4	21	0	16
CE101	115	4	10	8	4	12	-1	16	-7	20	-13	24	-19	28	-23
CE101	116	32	-26	36	-29	40	-31	44	-32	48	-34	52	-38	56	-41
CE101	117	60	-42	64	-49	68	-52	72	-48	76	-45	80	-46	84	-48
CE101	118	88	-51	92	-55	96	-59	100	-64	104	-68	108	-75	112	-80
CE101	119	116	-90	120	-101	124	-110	128	-114	132	-117	136	-120	140	-123
CE101	11A	144	-124	148	-125	152	-128	156	-129	160	-129	164	-131	168	-133
CE101	11B	172	-135	176	-137	180	-139	184	-142	188	-143	192	-144	196	-142
CE101	11C	200	-146	204	-147	208	-147	212	-147	216	-146				

(Continued)

(Sheet 3 of 27)

Table C3 (Continued)

```
CASE 201
CE201    11620713     0 79 -150           -96    50   -92    50   -88    50   -84    50
CE201    12   -80    50   -76    50   -72    49   -68    36   -64    34   -60    33   -56    31
CE201    13   -52    28   -48    26   -44    26   -40    24   -36    21   -32    19   -28    17
CE201    14   -24    16   -20    12   -16    10   -12     6    -8     4    -4     2     0     0
CE201    15     4    -3     8    -5    12    -9    16   -11    20   -15    24   -17    28   -20
CE201    16    32   -22    36   -26    40   -28    44   -30    48   -32    52   -36    56   -38
CE201    17    60   -42    64   -45    68   -46    72   -51    76   -55    80   -57    84   -60
CE201    18    88   -62    92   -65    96   -67   100   -70   104   -72   108   -76   112   -79
CE201    19   116   -82   120   -83   124   -88   128   -90   132   -93   136   -95   140   -99
CE201    1A   144  -101   148  -105   152  -107   156  -107   160  -112   164  -115   168  -119
CE201    1B   172  -123   176  -125   180  -127   184  -128   188  -132   192  -134   196  -136
CE201    1C   200  -138   204  -142   208  -144   212  -145   216  -146

CE201    21620713   100 79 -150           -96    50   -92    50   -88    50   -84    50
CE201    22   -80    50   -76    50   -72    49   -68    36   -64    34   -60    33   -56    31
CE201    23   -52    29   -48    27   -44    26   -40    25   -36    24   -32    22   -28    20
CE201    24   -24    19   -20    18   -16    22   -12    21    -8    18    -4    14     0    10
CE201    25     4     4     8     0    12    -6    16   -11    20   -17    24   -22    28   -26
CE201    26    32   -28    36   -31    40   -32    44   -33    48   -36    52   -39    56   -42
CE201    27    60   -46    64   -49    68   -49    72   -49    76   -51    80   -55    84   -59
CE201    28    88   -65    92   -62    96   -67   100   -73   104   -75   108   -77   112   -80
CE201    29   116   -82   120   -84   124   -87   128   -89   132   -92   136   -96   140   -98
CE201    2A   144  -100   148  -103   152  -106   156  -109   160  -110   164  -113   168  -115
CE201    2B   172  -120   176  -122   180  -126   184  -128   188  -131   192  -133   196  -135
CE201    2C   200  -136   204  -138   208  -140   212  -142   216  -143

CE201    31620713   200 79 -150           -96    50   -92    50   -88    50   -84    50
CE201    32   -80    50   -76    50   -72    49   -68    37   -64    35   -60    33   -56    31
CE201    33   -52    30   -48    28   -44    27   -40    25   -36    24   -32    22   -28    20
CE201    34   -24    21   -20    30   -16    31   -12    30    -8    27    -4    23     0    17
CE201    35     4    10     8     2    12    -2    16    -8    20   -15    24   -23    28   -28
CE201    36    32   -31    36   -35    40   -38    44   -38    48   -37    52   -40    56   -53
CE201    37    60   -52    64   -53    68   -51    72   -51    76   -51    80   -59    84   -60
CE201    38    88   -69    92   -64    96   -70   100   -70   104   -70   108   -77   112   -79
CE201    39   116   -83   120   -86   124   -88   128   -91   132   -94   136   -96   140   -99
CE201    3A   144  -102   148  -105   152  -106   156  -109   160  -111   164  -114   168  -117
CE201    3B   172  -121   176  -125   180  -128   184  -129   188  -132   192  -134   196  -135
CE201    3C   200  -136   204  -139   208  -139   212  -142   216  -143

CE201    41620713   300 79 -150           -96    50   -92    50   -88    50   -84    50
CE201    42   -80    50   -76    50   -72    49   -68    38   -64    36   -60    33   -56    31
CE201    43   -52    29   -48    28   -44    27   -40    25   -36    24   -32    22   -28    21
CE201    44   -24    30   -20    38   -16    39   -12    36    -8    33    -4    28     0    20
CE201    45     4    13     8    13    12    -1    16    -5    20   -12    24   -20    28   -27
CE201    46    32   -32    36   -35    40   -37    44   -39    48   -40    52   -41    56   -45
CE201    47    60   -57    64   -59    68   -60    72   -59    76   -62    80   -63    84   -57
CE201    48    88   -55    92   -58    96   -64   100   -71   104   -74   108   -81   112   -80
CE201    49   116   -81   120   -85   124   -83   128   -93   132   -97   136   -99   140  -103
CE201    4A   144  -106   148  -109   152  -108   156  -110   160  -111   164  -114   168  -118
CE201    4B   172  -120   176  -123   180  -127   184  -128   188  -132   192  -136   196  -136
CE201    4C   200  -138   204  -138   208  -136   212  -140   216  -143
```

(Continued)

(Sheet 4 of 27)

Table C3 (Continued)

```
CE201    51620713  500 79 -150              -96    50   -92    50   -88    50   -84    50
CE201    52   -80    50   -76    50   -72    49   -68    38   -64    35   -60    34   -56    32
CE201    53   -52    30   -48    28   -44    27   -40    25   -36    23   -32    22   -28    23
CE201    54   -24    37   -20    43   -16    43   -12    40    -8    35    -4    28     0    20
CE201    55     4    12     8     3    12    -3    16   -11    20   -19    24   -22    28   -28
CE201    56    32   -29    36   -34    40   -36    44   -39    48   -42    52   -48    56   -50
CE201    57    60   -55    64   -48    68   -47    72   -49    76   -47    80   -49    84   -70
CE201    58    88   -67    92   -65    96   -65   100   -68   104   -76   108   -79   112   -89
CE201    59   116   -87   120   -90   124   -87   128   -96   132  -103   136  -106   140  -108
CE201    5A   144  -111   148  -113   152  -111   156  -111   160  -112   164  -115   168  -119
CE201    5B   172  -123   176  -127   180  -129   184  -130   188  -131   192  -135   196  -136
CE201    5C   200  -136   204  -137   208  -138   212  -142   216  -145

CE201    61620713 1000 79 -150              -96    50   -92    50   -88    50   -84    50
CE201    62   -80    50   -76    50   -72    49   -68    40   -64    35   -60    34   -56    34
CE201    63   -52    33   -48    32   -44    29   -40    27   -36    25   -32    25   -28    39
CE201    64   -24    47   -20    46   -16    43   -12    38    -8    33    -4    28     0    22
CE201    65     4    15     8     7    12     0    16    -5    20   -12    24   -18    28   -23
CE201    66    32   -28    36   -32    40   -34    44   -38    48   -43    52   -52    56   -52
CE201    67    60   -44    64   -42    68   -47    72   -47    76   -47    80   -58    84   -63
CE201    68    88   -63    92   -64    96   -67   100   -84   104   -80   108   -90   112   -85
CE201    69   116   -90   120   -89   124  -100   128  -104   132  -107   136  -110   140  -114
CE201    6A   144  -116   148  -117   152  -119   156  -118   160  -119   164  -119   168  -122
CE201    6B   172  -125   176  -127   180  -130   184  -132   188  -134   192  -133   196  -135
CE201    6C   200  -135   204  -137   208  -139   212  -142   216  -143

CE201    71620713 1500 79 -150              -96    50   -92    50   -88    50   -84    50
CE201    72   -80    50   -76    50   -72    49   -68    41   -64    38   -60    40   -56    39
CE201    73   -52    37   -48    33   -44    29   -40    27   -36    28   -32    32   -28    42
CE201    74   -24    49   -20    49   -16    46   -12    41    -8    35    -4    30     0    23
CE201    75     4    16     8     8    12     2    16    -4    20   -10    24   -16    28   -21
CE201    76    32   -25    36   -29    40   -31    44   -35    48   -44    52   -51    56   -43
CE201    77    60   -37    64   -40    68   -44    72   -47    76   -54    80   -55    84   -54
CE201    78    88   -57    92   -65    96   -77   100   -83   104   -85   108   -82   112   -85
CE201    79   116   -95   120   -98   124  -107   128  -104   132  -108   136  -114   140  -121
CE201    7A   144  -123   148  -125   152  -125   156  -124   160  -122   164  -122   168  -123
CE201    7B   172  -126   176  -127   180  -129   184  -131   188  -133   192  -134   196  -136
CE201    7C   200  -137   204  -139   208  -141   212  -140   216  -143

CE201    81620713 2000 79 -150              -96    50   -92    50   -88    50   -84    50
CE201    82   -80    50   -76    50   -72    49   -68    41   -64    38   -60    40   -56    39
CE201    83   -52    37   -48    33   -44    29   -40    27   -36    28   -32    32   -28    42
CE201    84   -24    49   -20    47   -16    48   -12    44    -8    37    -4    31     0    25
CE201    85     4    18     8    10    12     3    16    -1    20    -9    24   -16    28   -21
CE201    86    32   -26    36   -31    40   -34    44   -36    48   -36    52   -39    56   -50
CE201    87    60   -50    64   -43    68   -40    72   -42    76   -46    80   -49    84   -52
CE201    88    88   -68    92   -69    96   -80   100   -86   104   -83   108   -82   112   -89
CE201    89   116   -91   120   -94   124  -101   128  -106   132  -115   136  -118   140  -122
CE201    8A   144  -125   148  -128   152  -127   156  -127   160  -128   164  -127   168  -127
CE201    8B   172  -128   176  -129   180  -131   184  -131   188  -133   192  -135   196  -137
CE201    8C   200  -137   204  -140   208  -139   212  -142   216  -143
```

(Continued)

(Sheet 5 of 27)

Table C3 (Continued)

```
CE201   91620713 3000 79 -150              -96   50  -92   50  -88   50  -84   50
CE201    92  -80   50  -76   50  -72   49  -68   41  -64   38  -60   40  -56   39
CE201    93  -52   37  -48   33  -44   29  -40   27  -36   28  -32   32  -28   47
CE201    94  -24   45  -20   44  -16   46  -12   47   -8   42   -4   35    0   29
CE201    95    4   21    8   13   12    5   16    0   20   -7   24  -14   28  -19
CE201    96   32  -22   36  -28   40  -32   44  -33   48  -35   52  -40   56  -51
CE201    97   60  -47   64  -39   68  -38   72  -41   76  -44   80  -47   84  -58
CE201    98   88  -67   92  -81   96  -80  100  -88  104  -80  108  -83  112  -89
CE201    99  116  -95  120  -98  124 -106  128 -109  132 -113  136 -120  140 -123
CE201    9A  144 -124  148 -128  152 -133  156 -136  160 -134  164 -135  168 -133
CE201    9B  172 -130  176 -131  180 -130  184 -130  188 -133  192 -134  196 -136
CE201    9C  200 -139  204 -142  208 -142  212 -142  216 -144

CE201  101620713 4000 79 -150              -96   50  -92   50  -88   50  -84   50
CE201   102  -80   50  -76   50  -72   49  -68   41  -64   38  -60   40  -56   39
CE201   103  -52   37  -48   33  -44   29  -40   27  -36   28  -32   43  -28   48
CE201   104  -24   45  -20   45  -16   45  -12   48   -8   42   -4   36    0   30
CE201   105    4   23    8   16   12    8   16    1   20   -5   24  -11   28  -18
CE201   106   32  -23   36  -26   40  -27   44  -34   48  -35   52  -38   56  -45
CE201   107   60  -52   64  -45   68  -41   72  -43   76  -45   80  -48   84  -53
CE201   108   88  -73   92  -81   96  -77  100  -76  104  -84  108  -99  112  -97
CE201   109  116  -99  120 -101  124  -98  128 -105  132 -110  136 -115  140 -115
CE201   10A  144 -116  148 -125  152 -134  156 -136  160 -139  164 -138  168 -136
CE201   10B  172 -135  176 -133  180 -132  184 -132  188 -135  192 -136  196 -138
CE201   10C  200 -140  204 -141  208 -142  212 -144  216 -145

CASE 301
CE301   11620615    0 79 -140             -100   57  -96   55  -92   52  -88   53
CE301    12  -84   54  -80   53  -76   52  -72   52  -68   49  -64   46  -60   44
CE301    13  -56   41  -52   37  -48   34  -44   31  -40   27  -36   24  -32   22
CE301    14  -28   19  -24   16  -20   13  -16   10  -12    7   -8    5   -4    2
CE301    15    0    0    4   -2    8   -4   12   -7   16  -10   20  -12   24  -15
CE301    16   28  -17   32  -20   36  -22   40  -25   44  -28   48  -30   52  -33
CE301    17   56  -35   60  -38   64  -41   68  -43   72  -46   76  -48   80  -51
CE301    18   84  -54   88  -57   92  -60   96  -62  100  -65  104  -67  108  -70
CE301    19  112  -73  116  -76  120  -79  124  -81  128  -84  132  -87  136  -90
CE301    1A  140  -93  144  -94  148  -97  152  -99  156 -101  160 -102  164 -104
CE301    1B  168 -106  172 -108  176 -110  180 -112  184 -114  188 -116  192 -118
CE301    1C  196 -120  200 -121  204 -120  208 -121  212 -120

CE301   21620615  100 79 -140             -100   57  -96   56  -92   54  -88   54
CE301    22  -84   54  -80   53  -76   52  -72   51  -68   49  -64   46  -60   44
CE301    23  -56   41  -52   38  -48   35  -44   32  -40   30  -36   28  -32   26
CE301    24  -28   23  -24   20  -20   17  -16   13  -12    9   -8    5   -4    1
CE301    25    0   -1    4   -5    8   -8   12   -9   16  -10   20  -12   24  -14
CE301    26   28  -17   32  -20   36  -22   40  -24   44  -26   48  -29   52  -32
CE301    27   56  -37   60  -39   64  -40   68  -44   72  -53   76  -60   80  -58
CE301    28   84  -54   88  -54   92  -48   96  -52  100  -56  104  -63  108  -70
CE301    29  112  -70  116  -72  120  -78  124  -81  128  -84  132  -87  136  -89
CE301    2A  140  -91  144  -94  148  -98  152 -101  156 -101  160 -103  164 -106
CE301    2B  168 -110  172 -111  176 -112  180 -113  184 -115  188 -117  192 -118
CE301    2C  196 -118  200 -119  204 -120  208 -121  212 -123
```

(Continued)

(Sheet 6 of 27)

Table C3 (Continued)

CE301	31620615		300	79	-140			-100	57	-96	56	-92	54	-88	54
CE301	32	-84	54	-80	53	-76	52	-72	51	-68	49	-64	46	-60	44
CE301	33	-56	41	-52	38	-48	35	-44	32	-40	30	-36	28	-32	26
CE301	34	-28	24	-24	22	-20	20	-16	17	-12	13	-8	9	-4	4
CE301	35	0	0	4	-4	8	-8	12	-16	16	-23	20	-16	24	-14
CE301	36	28	-15	32	-16	36	-17	40	-19	44	-21	48	-24	52	-28
CE301	37	56	-32	60	-37	64	-46	68	-55	72	-55	76	-48	80	-43
CE301	38	84	-43	88	-45	92	-48	96	-52	100	-59	104	-71	108	-75
CE301	39	112	-74	116	-78	120	-80	124	-80	128	-84	132	-86	136	-91
CE301	3A	140	-95	144	-95	148	-97	152	-102	156	-104	160	-107	164	-107
CE301	3B	168	-109	172	-112	176	-113	180	-115	184	-116	188	-117	192	-118
CE301	3C	196	-119	200	-121	204	-122	208	-123	212	-125				
CE301	41620615		500	79	-140			-100	57	-96	56	-92	54	-88	54
CE301	42	-84	54	-80	53	-76	52	-72	51	-68	49	-64	46	-60	44
CE301	43	-56	41	-52	38	-48	35	-44	33	-40	32	-36	31	-32	29
CE301	44	-28	27	-24	25	-20	22	-16	19	-12	15	-8	11	-4	6
CE301	45	0	1	4	-3	8	-6	12	-9	16	-15	20	-19	24	-15
CE301	46	28	-16	32	-17	36	-19	40	-21	44	-23	48	-26	52	-29
CE301	47	56	-31	60	-35	64	-42	68	-52	72	-58	76	-55	80	-47
CE301	48	84	-44	88	-45	92	-48	96	-51	100	-57	104	-65	108	-71
CE301	49	112	-76	116	-79	120	-80	124	-81	128	-84	132	-88	136	-95
CE301	4A	140	-100	144	-97	148	-99	152	-100	156	-103	160	-109	164	-110
CE301	4B	168	-110	172	-114	176	-118	180	-119	184	-119	188	-121	192	-120
CE301	4C	196	-121	200	-123	204	-123	208	-122	212	-124				
CE301	51620615		1000	79	-140			-100	57	-96	56	-92	54	-88	54
CE301	52	-84	54	-80	53	-76	52	-72	51	-68	49	-64	46	-60	44
CE301	53	-56	42	-52	39	-48	36	-44	35	-40	34	-36	34	-32	33
CE301	54	-28	32	-24	30	-20	27	-16	24	-12	21	-8	16	-4	11
CE301	55	0	5	4	0	8	-3	12	-6	16	-12	20	-19	24	-15
CE301	56	28	-14	32	-15	36	-18	40	-20	44	-22	48	-26	52	-29
CE301	57	56	-32	60	-38	64	-49	68	-53	72	-49	76	-43	80	-42
CE301	58	84	-44	88	-46	92	-49	96	-53	100	-59	104	-69	108	-75
CE301	59	112	-79	116	-82	120	-83	124	-86	128	-88	132	-92	136	-94
CE301	5A	140	-95	144	-99	148	-100	152	-102	156	-105	160	-107	164	-111
CE301	5B	168	-114	172	-116	176	-118	180	-119	184	-122	188	-124	192	-125
CE301	5C	196	-125	200	-125	204	-125	208	-124	212	-129				
CE301	61620615		1500	79	-140			-100	57	-96	56	-92	54	-88	54
CE301	62	-84	54	-80	53	-76	52	-72	51	-68	49	-64	46	-60	44
CE301	63	-56	42	-52	39	-48	36	-44	35	-40	35	-36	35	-32	36
CE301	64	-28	37	-24	36	-20	35	-16	31	-12	27	-8	23	-4	19
CE301	65	0	15	4	10	8	4	12	0	16	-3	20	-8	24	-15
CE301	66	28	-19	32	-22	36	-23	40	-25	44	-26	48	-29	52	-31
CE301	67	56	-36	60	-39	64	-42	68	-51	72	-58	76	-57	80	-50
CE301	68	84	-47	88	-52	92	-55	96	-54	100	-58	104	-61	108	-66
CE301	69	112	-73	116	-79	120	-85	124	-89	128	-92	132	-95	136	-98
CE301	6A	140	-99	144	-101	148	-104	152	-105	156	-107	160	-109	164	-110
CE301	6B	168	-114	172	-117	176	-118	180	-121	184	-124	188	-125	192	-124
CE301	6C	196	-125	200	-128	204	-130	208	-128	212	-130				

(Continued)

(Sheet 7 of 27)

Table C3 (Continued)

```
CE301   71620615 2000 79 -140            -100   57   -96   56   -92   54   -88   54
CE301   72  -84   54  -80   53  -76   52  -72   51   -68   49   -64   46   -60   44
CE301   73  -56   42  -52   39  -48   36  -44   35   -40   35   -36   37   -32   41
CE301   74  -28   42  -24   41  -20   39  -16   36   -12   32    -8   28    -4   24
CE301   75    0   19    4   13    8    7   12    2    16   -3    20   -9    24  -14
CE301   76   28  -18   32  -21   36  -24   40  -26    44  -28    48  -29    52  -32
CE301   77   56  -36   60  -39   64  -43   68  -53    72  -62    76  -63    80  -57
CE301   78   84  -50   88  -49   92  -50   96  -53   100  -57   104  -60   108  -63
CE301   79  112  -66  116  -69  120  -75  124  -85   128  -94   132  -97   136  -98
CE301   7A  140 -102  144 -105  148 -105  152 -107   156 -110   160 -113   164 -117
CE301   7B  168 -119  172 -118  176 -118  180 -123   184 -124   188 -124   192 -126
CE301   7C  196 -124  200 -126  204 -131  208 -134   212 -134

CE301   81620615 3000 79 -140            -100   57   -96   56   -92   54   -88   54
CE301   82  -84   54  -80   53  -76   52  -72   51   -68   49   -64   46   -60   44
CE301   83  -56   42  -52   39  -48   37  -44   36   -40   37   -36   39   -32   41
CE301   84  -28   43  -24   44  -20   42  -16   38   -12   33    -8   29    -4   26
CE301   85    0   22    4   18    8   13   12    7    16    0    20   -5    24  -10
CE301   86   28  -15   32  -20   36  -24   40  -27    44  -29    48  -31    52  -32
CE301   87   56  -33   60  -35   64  -37   68  -40    72  -46    76  -59    80  -69
CE301   88   84  -71   88  -65   92  -57   96  -52   100  -49   104  -53   108  -58
CE301   89  112  -63  116  -67  120  -71  124  -75   128  -82   132  -92   136 -103
CE301   8A  140 -107  144 -109  148 -110  152 -110   156 -112   160 -115   164 -118
CE301   8B  168 -120  172 -123  176 -126  180 -127   184 -127   188 -131   192 -135
CE301   8C  196 -137  200 -138  204 -138  208 -139   212 -138

CE301   91620615 4000 79 -140            -100   57   -96   56   -92   54   -88   54
CE301   92  -84   54  -80   53  -76   52  -72   51   -68   49   -64   46   -60   44
CE301   93  -56   42  -52   40  -48   38  -44   37   -40   38   -36   40   -32   41
CE301   94  -28   43  -24   44  -20   43  -16   40   -12   36    -8   33    -4   29
CE301   95    0   25    4   21    8   17   12   12    16    6    20    1    24   -4
CE301   96   28  -10   32  -16   36  -21   40  -25    44  -28    48  -29    52  -30
CE301   97   56  -32   60  -33   64  -36   68  -39    72  -42    76  -46    80  -56
CE301   98   84  -65   88  -65   92  -58   96  -53   100  -52   104  -53   108  -57
CE301   99  112  -61  116  -65  120  -69  124  -73   128  -77   132  -84   136  -98
CE301   9A  140 -109  144 -114  148 -118  152 -122   156 -125   160 -126   164 -129
CE301   9B  168 -133  172 -136  176 -136  180 -135   184 -136   188 -136   192 -136
CE301   9C  196 -136  200 -137  204 -140  208 -140   212 -140

CE301  101620615 5000 79 -140            -100   57   -96   56   -92   54   -88   54
CE301  102  -84   54  -80   53  -76   52  -72   51   -68   49   -64   46   -60   44
CE301  103  -56   42  -52   39  -48   38  -44   38   -40   38   -36   40   -32   42
CE301  104  -28   44  -24   45  -20   45  -16   41   -12   37    -8   33    -4   30
CE301  105    0   27    4   23    8   19   12   13    16    8    20    2    24   -4
CE301  106   28  -10   32  -15   36  -20   40  -24    44  -28    48  -30    52  -32
CE301  107   56  -33   60  -35   64  -39   68  -43    72  -45    76  -45    80  -51
CE301  108   84  -60   88  -63   92  -59   96  -55   100  -53   104  -54   108  -57
CE301  109  112  -61  116  -65  120  -68  124  -72   128  -76   132  -81   136  -87
CE301  10A  140  -98  144 -111  148 -121  152 -129   156 -131   160 -131   164 -132
CE301  10B  168 -134  172 -135  176 -136  180 -137   184 -138   188 -138   192 -138
CE301  10C  196 -138  200 -138  204 -138  208 -140   212 -140
```

(Continued)

(Sheet 8 of 27)

Table C3 (Continued)

CASE 401

CE401	11620522		0	81	-145			-104	52	-100	53	-96	52	-92	52
CE401	12	-88	52	-84	50	-80	50	-76	48	-72	47	-68	45	-64	43
CE401	13	-60	39	-56	37	-52	34	-48	32	-44	29	-40	26	-36	22
CE401	14	-32	20	-28	17	-24	15	-20	12	-16	10	-12	7	-8	5
CE401	15	-4	2	0	0	4	-3	8	-5	12	-9	16	-11	20	-13
CE401	16	24	-15	28	-19	32	-21	36	-24	40	-26	44	-30	48	-33
CE401	17	52	-35	56	-37	60	-40	64	-42	68	-45	72	-47	76	-50
CE401	18	80	-52	84	-56	88	-58	92	-61	96	-63	100	-67	104	-69
CE401	19	108	-72	112	-74	116	-77	120	-79	124	-82	128	-84	132	-87
CE401	1A	136	-89	140	-93	144	-95	148	-99	152	-101	156	-104	160	-106
CE401	1B	164	-110	168	-112	172	-115	176	-117	180	-121	184	-123	188	-126
CE401	1C	192	-128	196	-131	200	-133	204	-135	208	-137	212	-140	216	-142
CE401	21620522		100	81	-145			-104	52	-100	53	-96	52	-92	52
CE401	22	-88	52	-84	50	-80	50	-76	48	-72	46	-68	42	-64	40
CE401	23	-60	37	-56	35	-52	32	-48	30	-44	26	-40	23	-36	20
CE401	24	-32	18	-28	18	-24	14	-20	10	-16	4	-12	0	-8	-1
CE401	25	-4	-3	0	-6	4	-9	8	-11	12	-15	16	-17	20	-17
CE401	26	24	-22	28	-26	32	-27	36	-30	40	-33	44	-36	48	-38
CE401	27	52	-37	56	-40	60	-50	64	-60	68	-67	72	-65	76	-52
CE401	28	80	-42	84	-36	88	-38	92	-42	96	-57	100	-63	104	-68
CE401	29	108	-69	112	-74	116	-79	120	-84	124	-88	128	-91	132	-94
CE401	2A	136	-96	140	-99	144	-99	148	-102	152	-107	156	-106	160	-109
CE401	2B	164	-113	168	-115	172	-118	176	-121	180	-124	184	-126	188	-129
CE401	2C	192	-131	196	-133	200	-135	204	-136	208	-137	212	-140	216	-142
CE401	31620522		300	81	-145			-104	52	-100	53	-96	52	-92	52
CE401	32	-88	52	-84	50	-80	50	-76	48	-72	46	-68	42	-64	40
CE401	33	-60	37	-56	35	-52	32	-48	30	-44	26	-40	24	-36	20
CE401	34	-32	16	-28	14	-24	11	-20	5	-16	1	-12	-1	-8	-3
CE401	35	-4	-6	0	-9	4	-12	8	-14	12	-18	16	-20	20	-19
CE401	36	24	-22	28	-28	32	-31	36	-33	40	-32	44	-32	48	-36
CE401	37	52	-41	56	-49	60	-52	64	-47	68	-41	72	-47	76	-60
CE401	38	80	-69	84	-72	88	-61	92	-46	96	-41	100	-41	104	-44
CE401	39	108	-52	112	-59	116	-74	120	-77	124	-86	128	-92	132	-92
CE401	3A	136	-98	140	-101	144	-103	148	-105	152	-108	156	-113	160	-112
CE401	3B	164	-114	168	-114	172	-118	176	-122	180	-124	184	-126	188	-128
CE401	3C	192	-129	196	-132	200	-134	204	-136	208	-137	212	-140	216	-142
CE401	41620522		500	81	-145			-104	52	-100	53	-96	52	-92	52
CE401	42	-88	52	-84	50	-80	50	-76	48	-72	46	-68	42	-64	40
CE401	43	-60	37	-56	35	-52	32	-48	30	-44	26	-40	23	-36	17
CE401	44	-32	15	-28	12	-24	7	-20	1	-16	0	-12	-3	-8	-4
CE401	45	-4	-8	0	-11	4	-14	8	-15	12	-19	16	-21	20	-24
CE401	46	24	-26	28	-30	32	-34	36	-36	40	-37	44	-37	48	-38
CE401	47	52	-41	56	-47	60	-51	64	-55	68	-55	72	-49	76	-45
CE401	48	80	-47	84	-61	88	-71	92	-76	96	-72	100	-58	104	-46
CE401	49	108	-43	112	-46	116	-51	120	-57	124	-65	128	-79	132	-88
CE401	4A	136	-94	140	-98	144	-102	148	-101	152	-108	156	-111	160	-114
CE401	4B	164	-117	168	-119	172	-121	176	-122	180	-124	184	-126	188	-126
CE401	4C	192	-129	196	-131	200	-131	204	-135	208	-137	212	-140	216	-142

(Continued)

(Sheet 9 of 27)

Table C3 (Continued)

```
CE401    51620522 1000 81 -145            -104   52 -100   53  -96   52  -92   52
CE401    52  -88   52  -84   50  -80   50  -76   47  -72   45  -68   42  -64   40
CE401    53  -60   37  -56   35  -52   32  -48   30  -44   26  -40   18  -36   15
CE401    54  -32   12  -28    5  -24    1  -20    0  -16   -2  -12   -5   -8   -7
CE401    55   -4  -11    0  -15    4  -19    8  -21   12  -24   16  -24   20  -28
CE401    56   24  -30   28  -31   32  -33   36  -36   40  -41   44  -45   48  -47
CE401    57   52  -49   56  -51   60  -54   64  -54   68  -55   72  -56   76  -59
CE401    58   80  -61   84  -59   88  -58   92  -61   96  -71  100  -80  104  -81
CE401    59  108  -60  112  -42  116  -44  120  -47  124  -51  128  -57  132  -63
CE401    5A  136  -71  140  -80  144  -96  148 -101  152 -100  156 -111  160 -114
CE401    5B  164 -117  168 -119  172 -122  176 -122  180 -124  184 -124  188 -126
CE401    5C  192 -128  196 -128  200 -130  204 -134  208 -137  212 -140  216 -142

CE401    61620522 1500 81 -145            -104   52 -100   53  -96   52  -92   52
CE401    62  -88   52  -84   50  -80   50  -76   47  -72   45  -68   42  -64   40
CE401    63  -60   37  -56   35  -52   32  -48   29  -44   17  -40   14  -36   11
CE401    64  -32    5  -28    0  -24   -1  -20   -4  -16   -5  -12   -9   -8  -13
CE401    65   -4  -16    0  -16    4  -18    8  -22   12  -26   16  -29   20  -33
CE401    66   24  -35   28  -34   32  -34   36  -37   40  -40   44  -42   48  -45
CE401    67   52  -49   56  -52   60  -55   64  -55   68  -57   72  -59   76  -62
CE401    68   80  -62   84  -59   88  -61   92  -61   96  -70  100  -80  104  -82
CE401    69  108  -69  112  -47  116  -42  120  -45  124  -49  128  -54  132  -59
CE401    6A  136  -65  140  -73  144  -81  148  -95  152 -107  156 -107  160 -112
CE401    6B  164 -113  168 -114  172 -117  176 -119  180 -119  184 -120  188 -121
CE401    6C  192 -123  196 -125  200 -127  204 -131  208 -137  212 -140  216 -142

CE401    71620522 2000 81 -145            -104   52 -100   53  -96   52  -92   52
CE401    72  -88   52  -84   50  -80   50  -76   47  -72   45  -68   42  -64   40
CE401    73  -60   37  -56   35  -52   32  -48   29  -44   14  -40   12  -36    8
CE401    74  -32    2  -28   -1  -24   -3  -20   -5  -16   -7  -12  -11   -8  -14
CE401    75   -4  -17    0  -19    4  -22    8  -24   12  -27   16  -31   20  -33
CE401    76   24  -31   28  -33   32  -35   36  -37   40  -40   44  -44   48  -47
CE401    77   52  -53   56  -56   60  -59   64  -60   68  -61   72  -61   76  -62
CE401    78   80  -62   84  -62   88  -58   92  -64   96  -67  100  -77  104  -82
CE401    79  108  -72  112  -51  116  -42  120  -43  124  -47  128  -52  132  -57
CE401    7A  136  -63  140  -72  144  -86  148  -97  152  -97  156 -101  160 -107
CE401    7B  164 -110  168 -111  172 -114  176 -116  180 -118  184 -118  188 -118
CE401    7C  192 -121  196 -125  200 -127  204 -130  208 -137  212 -140  216 -142

CE401    81620522 3000 81 -145            -104   52 -100   53  -96   52  -92   52
CE401    82  -88   52  -84   50  -80   50  -76   47  -72   45  -68   42  -64   40
CE401    83  -60   38  -56   35  -52   24  -48   15  -44   12  -40    7  -36    1
CE401    84  -32   -1  -28   -4  -24   -6  -20   -8  -16  -13  -12  -17   -8  -19
CE401    85   -4  -21    0  -23    4  -21    8  -26   12  -23   16  -23   20  -27
CE401    86   24  -30   28  -27   32  -41   36  -45   40  -49   44  -53   48  -56
CE401    87   52  -59   56  -59   60  -60   64  -60   68  -61   72  -63   76  -62
CE401    88   80  -64   84  -62   88  -59   92  -61   96  -65  100  -75  104  -78
CE401    89  108  -72  112  -52  116  -41  120  -40  124  -44  128  -49  132  -55
CE401    8A  136  -62  140  -77  144  -85  148  -82  152  -91  156  -97  160  -98
CE401    8B  164 -103  168 -106  172 -110  176 -112  180 -114  184 -115  188 -118
CE401    8C  192 -119  196 -123  200 -125  204 -126  208 -129  212 -140  216 -142
```

(Continued)

(Sheet 10 of 27)

Table C3 (Continued)

CE401	91620522		4000	81	-145			-104	52	-100	53	-96	52	-92	52
CE401	92	-88	52	-84	50	-80	50	-76	47	-72	45	-68	42	-64	40
CE401	93	-60	38	-56	35	-52	17	-48	14	-44	11	-40	6	-36	0
CE401	94	-32	-2	-28	-4	-24	-5	-20	-9	-16	-14	-12	-20	-8	-24
CE401	95	-4	-27	0	-28	4	-28	8	-26	12	-18	16	-21	20	-27
CE401	96	24	-35	28	-40	32	-45	36	-49	40	-53	44	-58	48	-61
CE401	97	52	-63	56	-62	60	-64	64	-62	68	-62	72	-61	76	-65
CE401	98	80	-69	84	-64	88	-58	92	-52	96	-58	100	-66	104	-74
CE401	99	108	-71	112	-73	116	-43	120	-39	124	-43	128	-48	132	-54
CE401	9A	136	-62	140	-79	144	-82	148	-83	152	-87	156	-91	160	-96
CE401	9B	164	-99	168	-102	172	-109	176	-112	180	-114	184	-116	188	-117
CE401	9C	192	-120	196	-123	200	-125	204	-126	208	-129	212	-140	216	-142
CE401	101620522		5000	81	-145			-104	52	-100	53	-96	52	-92	52
CE401	102	-88	52	-84	50	-80	50	-76	47	-72	45	-68	42	-64	40
CE401	103	-60	37	-56	19	-52	16	-48	14	-44	11	-40	4	-36	-1
CE401	104	-32	-3	-28	-3	-24	-6	-20	-11	-16	-16	-12	-21	-8	-23
CE401	105	-4	-24	0	-23	4	-20	8	-16	12	-23	16	-29	20	-33
CE401	106	24	-39	28	-44	32	-48	36	-52	40	-56	44	-60	48	-63
CE401	107	52	-66	56	-66	60	-69	64	-69	68	-67	72	-66	76	-67
CE401	108	80	-67	84	-67	88	-62	92	-54	96	-55	100	-59	104	-69
CE401	109	108	-74	112	-70	116	-50	120	-39	124	-38	128	-42	132	-47
CE401	10A	136	-54	140	-71	144	-74	148	-78	152	-85	156	-87	160	-94
CE401	10B	164	-97	168	-99	172	-103	176	-106	180	-113	184	-114	188	-114
CE401	10C	192	-120	196	-120	200	-122	204	-122	208	-129	212	-140	216	-142
CE401	111620522		6000	81	-145			-104	52	-100	53	-96	52	-92	52
CE401	112	-88	52	-84	50	-80	50	-76	47	-72	45	-68	42	-64	41
CE401	113	-60	37	-56	18	-52	15	-48	14	-44	10	-40	4	-36	0
CE401	114	-32	-1	-28	-7	-24	-10	-20	-13	-16	-15	-12	-16	-8	-16
CE401	115	-4	-16	0	-17	4	-15	8	-21	12	-26	16	-27	20	-38
CE401	116	24	-38	28	-47	32	-51	36	-55	40	-58	44	-63	48	-66
CE401	117	52	-68	56	-70	60	-73	64	-70	68	-70	72	-68	76	-69
CE401	118	80	-69	84	-69	88	-68	92	-59	96	-55	100	-56	104	-66
CE401	119	108	-73	112	-72	116	-54	120	-43	124	-38	128	-39	132	-52
CE401	11A	136	-51	140	-59	144	-71	148	-78	152	-80	156	-82	160	-89
CE401	11B	164	-93	168	-96	172	-98	176	-102	180	-109	184	-113	188	-114
CE401	11C	192	-116	196	-120	200	-120	204	-123	208	-129	212	-140	216	-142
CE401	121620522		6600	81	-145			-104	52	-100	53	-96	52	-92	52
CE401	122	-88	52	-84	50	-80	50	-76	47	-72	45	-68	42	-64	41
CE401	123	-60	37	-56	17	-52	15	-48	12	-44	7	-40	0	-36	-4
CE401	124	-32	-5	-28	-6	-24	-4	-20	-7	-16	-9	-12	-12	-8	-12
CE401	125	-4	-16	0	-14	4	-20	8	-26	12	-31	16	-36	20	-41
CE401	126	24	-45	28	-49	32	-52	36	-56	40	-61	44	-65	48	-67
CE401	127	52	-70	56	-71	60	-69	64	-70	68	-70	72	-69	76	-69
CE401	128	80	-70	84	-69	88	-65	92	-59	96	-52	100	-55	104	-66
CE401	129	108	-73	112	-70	116	-52	120	-43	124	-38	128	-41	132	-46
CE401	12A	136	-52	140	-60	144	-72	148	-78	152	-81	156	-89	160	-89
CE401	12B	164	-91	168	-93	172	-95	176	-105	180	-110	184	-112	188	-114
CE401	12C	192	-118	196	-119	200	-121	204	-121	208	-129	212	-140	216	-142

(Continued)

(Sheet 11 of 27)

Table C3 (Continued)

```
CASE 501
CE501   11620719     0 79 -150             -88   50  -84   50  -80   50  -76   50
CE501   12  -72   50  -68   50  -64   49  -60   45  -56   43  -52   40  -48   38
CE501   13  -44   34  -40   31  -36   27  -32   25  -28   21  -24   19  -20   15
CE501   14  -16   13  -12    9   -8    7   -4    3    0    0    4   -2    8   -4
CE501   15   12   -7   16   -9   20  -13   24  -15   28  -17   32  -19   36  -22
CE501   16   40  -24   44  -28   48  -30   52  -33   56  -35   60  -39   64  -41
CE501   17   68  -43   72  -45   76  -49   80  -51   84  -53   88  -55   92  -59
CE501   18   96  -61  100  -63  104  -65  108  -68  112  -70  116  -74  120  -77
CE501   19  124  -80  128  -82  132  -85  136  -87  140  -90  144  -93  148  -97
CE501   1A  152  -99  156 -103  160 -105  164 -106  168 -111  172 -115  176 -117
CE501   1B  180 -120  184 -122  188 -125  192 -127  196 -129  200 -131  204 -134
CE501   1C  208 -136  212 -139  216 -140  220 -141  224 -143

CE501   21620719   100 79 -150             -88   50  -84   50  -80   50  -76   50
CE501   22  -72   50  -68   50  -64   49  -60   45  -56   43  -52   40  -48   38
CE501   23  -44   34  -40   32  -36   28  -32   25  -28   21  -24   19  -20   15
CE501   24  -16   13  -12    9   -8    6   -4    2    0    0    4   -3    8   -5
CE501   25   12   -8   16  -10   20  -13   24  -15   28  -19   32  -21   36  -24
CE501   26   40  -26   44  -30   48  -32   52  -35   56  -37   60  -41   64  -43
CE501   27   68  -46   72  -48   76  -53   80  -61   84  -58   88  -41   92  -40
CE501   28   96  -43  100  -52  104  -56  108  -64  112  -67  116  -70  120  -75
CE501   29  124  -79  128  -81  132  -84  136  -87  140  -90  144  -92  148  -96
CE501   2A  152  -98  156 -102  160 -105  164 -108  168 -110  172 -114  176 -117
CE501   2B  180 -118  184 -121  188 -124  192 -126  196 -128  200 -129  204 -133
CE501   2C  208 -135  212 -137  216 -139  220 -140  224 -143

CE501   31620719   300 79 -150             -88   50  -84   50  -80   50  -76   50
CE501   32  -72   50  -68   50  -64   49  -60   45  -56   43  -52   40  -48   38
CE501   33  -44   34  -40   32  -36   28  -32   25  -28   21  -24   18  -20   14
CE501   34  -16   11  -12    7   -8    4   -4    1    0    0    4   -4    8   -6
CE501   35   12   -9   16  -11   20  -15   24  -17   28  -21   32  -24   36  -27
CE501   36   40  -29   44  -33   48  -37   52  -40   56  -42   60  -45   64  -46
CE501   37   68  -49   72  -51   76  -55   80  -62   84  -66   88  -59   92  -41
CE501   38   96  -33  100  -34  104  -39  108  -46  112  -56  116  -67  120  -73
CE501   39  124  -79  128  -81  132  -85  136  -88  140  -91  144  -94  148  -97
CE501   3A  152  -99  156 -103  160 -105  164 -109  168 -111  172 -114  176 -117
CE501   3B  180 -120  184 -123  188 -123  192 -126  196 -128  200 -129  204 -132
CE501   3C  208 -133  212 -135  216 -138  220 -139  224 -141

CE501   41620719   500 79 -150             -88   50  -84   50  -80   50  -76   50
CE501   42  -72   50  -68   50  -64   49  -60   45  -56   43  -52   40  -48   38
CE501   43  -44   34  -40   32  -36   28  -32   25  -28   21  -24   18  -20   15
CE501   44  -16   11  -12    7   -8    3   -4    0    0   -1    4   -4    8   -6
CE501   45   12   -6   16  -10   20  -14   24  -18   28  -22   32  -24   36  -28
CE501   46   40  -30   44  -34   48  -36   52  -40   56  -44   60  -47   64  -48
CE501   47   68  -51   72  -53   76  -55   80  -56   84  -57   88  -60   92  -64
CE501   48   96  -70  100  -73  104  -62  108  -43  112  -36  116  -38  120  -44
CE501   49  124  -52  128  -63  132  -74  136  -82  140  -88  144  -94  148  -97
CE501   4A  152  -99  156 -103  160 -106  164 -110  168 -113  172 -115  176 -117
CE501   4B  180 -120  184 -122  188 -124  192 -125  196 -128  200 -129  204 -131
CE501   4C  208 -133  212 -136  216 -137  220 -140  224 -142
```

(Continued)

Table C3 (Continued)

CE501	51620719		1000	79	-150			-88	50	-84	50	-80	50	-76	50
CE501	52	-72	50	-68	50	-64	49	-60	45	-56	43	-52	40	-48	38
CE501	53	-44	34	-40	32	-36	28	-32	25	-28	21	-24	18	-20	14
CE501	54	-16	11	-12	5	-8	3	-4	0	0	-2	4	-6	8	-8
CE501	55	12	-10	16	-10	20	-13	24	-16	28	-22	32	-24	36	-28
CE501	56	40	-31	44	-35	48	-40	52	-46	56	-51	60	-54	64	-56
CE501	57	68	-59	72	-58	76	-58	80	-59	84	-59	88	-62	92	-66
CE501	58	96	-69	100	-73	104	-75	108	-69	112	-49	116	-37	120	-35
CE501	59	124	-39	128	-45	132	-53	136	-64	140	-77	144	-85	148	-90
CE501	5A	152	-96	156	-100	160	-105	164	-111	168	-114	172	-117	176	-119
CE501	5B	180	-120	184	-123	188	-125	192	-125	196	-127	200	-129	204	-131
CE501	5C	208	-133	212	-135	216	-137	220	-139	224	-143				
CE501	61620719		1500	79	-150			-88	50	-84	50	-80	50	-76	50
CE501	62	-72	50	-68	50	-64	49	-60	45	-56	43	-52	40	-48	38
CE501	63	-44	34	-40	32	-36	28	-32	25	-28	23	-24	18	-20	13
CE501	64	-16	9	-12	4	-8	0	-4	-1	0	-3	4	-6	8	-8
CE501	65	12	-12	16	-15	20	-10	24	-16	28	-21	32	-24	36	-28
CE501	66	40	-33	44	-37	48	-42	52	-48	56	-52	60	-57	64	-59
CE501	67	68	-62	72	-64	76	-64	80	-62	84	-61	88	-63	92	-65
CE501	68	96	-69	100	-73	104	-75	108	-74	112	-72	116	-60	120	-42
CE501	69	124	-36	128	-38	132	-43	136	-51	140	-61	144	-72	148	-84
CE501	6A	152	-92	156	-98	160	-102	164	-107	168	-111	172	-115	176	-118
CE501	6B	180	-120	184	-122	188	-125	192	-127	196	-128	200	-130	204	-131
CE501	6C	208	-133	212	-135	216	-137	220	-139	224	-140				
CE501	71620719		2000	79	-150			-88	50	-84	50	-80	50	-76	50
CE501	72	-72	50	-68	50	-64	49	-60	45	-56	43	-52	40	-48	38
CE501	73	-44	34	-40	32	-36	28	-32	25	-28	21	-24	18	-20	13
CE501	74	-16	8	-12	2	-8	-1	-4	-3	0	-5	4	-4	8	-7
CE501	75	12	-11	16	-13	20	-12	24	-15	28	-19	32	-22	36	-26
CE501	76	40	-32	44	-37	48	-43	52	-48	56	-55	60	-61	64	-63
CE501	77	68	-65	72	-66	76	-65	80	-65	84	-64	88	-64	92	-65
CE501	78	96	-67	100	-71	104	-73	108	-74	112	-74	116	-70	120	-50
CE501	79	124	-39	128	-37	132	-40	136	-46	140	-55	144	-66	148	-80
CE501	7A	152	-86	156	-92	160	-98	164	-104	168	-107	172	-114	176	-117
CE501	7B	180	-120	184	-122	188	-125	192	-127	196	-128	200	-129	204	-131
CE501	7C	208	-132	212	-135	216	-136	220	-139	224	-142				
CE501	81620719		3000	79	-150			-88	50	-84	50	-80	50	-76	50
CE501	82	-72	50	-68	50	-64	49	-60	45	-56	43	-52	40	-48	38
CE501	83	-44	34	-40	32	-36	28	-32	25	-28	21	-24	18	-20	9
CE501	84	-16	4	-12	0	-8	-2	-4	-3	0	-5	4	-7	8	-9
CE501	85	12	-11	16	-13	20	-14	24	-18	28	-21	32	-23	36	-27
CE501	86	40	-31	44	-35	48	-39	52	-43	56	-55	60	-65	64	-71
CE501	87	68	-73	72	-74	76	-73	80	-73	84	-70	88	-67	92	-67
CE501	88	96	-69	100	-68	104	-69	108	-71	112	-73	116	-73	120	-73
CE501	89	124	-69	128	-53	132	-39	136	-38	140	-42	144	-50	148	-59
CE501	8A	152	-72	156	-83	160	-87	164	-97	168	-103	172	-108	176	-113
CE501	8B	180	-117	184	-120	188	-124	192	-126	196	-127	200	-129	204	-131
CE501	8C	208	-132	212	-135	216	-135	220	-138	224	-140				

(Continued)

Table C3 (Continued)

```
CE501   91620719 4000 79 -150              -88   50  -84   50  -80   50  -76   50
CE501   92   -72   50  -68   50  -64   49  -60   45  -56   43  -52   40  -48   38
CE501   93   -44   34  -40   32  -36   28  -32   24  -28   19  -24   10  -20    5
CE501   94   -16    2  -12    0   -8   -1   -4   -4    0   -5    4   -9    8  -11
CE501   95    12  -13   16  -20   20  -15   24  -16   28  -24   32  -29   36  -32
CE501   96    40  -35   44  -39   48  -41   52  -45   56  -48   60  -51   64  -56
CE501   97    68  -66   72  -74   76  -77   80  -78   84  -79   88  -79   92  -78
CE501   98    96  -77  100  -75  104  -75  108  -77  112  -78  116  -79  120  -80
CE501   99   124  -82  128  -83  132  -73  136  -61  140  -44  144  -43  148  -46
CE501   9A   152  -50  156  -56  160  -64  164  -73  168  -83  172  -96  176 -106
CE501   9B   180 -114  184 -116  188 -118  192 -121  196 -123  200 -125  204 -128
CE501   9C   208 -130  212 -133  216 -134  220 -136  224 -139

CE501  101620719 5000 79 -150              -88   50  -84   50  -80   50  -76   50
CE501  102   -72   50  -68   50  -64   49  -60   45  -56   43  -52   40  -48   38
CE501  103   -44   34  -40   32  -36   28  -32   24  -28   12  -24    8  -20    3
CE501  104   -16    0  -12   -1   -8   -3   -4   -6    0   -8    4  -11    8  -14
CE501  105    12  -19   16  -14   20  -17   24  -25   28  -30   32  -32   36  -34
CE501  106    40  -36   44  -40   48  -42   52  -43   56  -44   60  -48   64  -51
CE501  107    68  -56   72  -63   76  -75   80  -80   84  -82   88  -83   92  -84
CE501  108    96  -84  100  -83  104  -82  108  -83  112  -82  116  -83  120  -83
CE501  109   124  -85  128  -84  132  -82  136  -74  140  -56  144  -41  148  -42
CE501  10A   152  -45  156  -50  160  -56  164  -65  168  -75  172  -86  176  -94
CE501  10B   180 -101  184 -106  188 -111  192 -116  196 -120  200 -122  204 -125
CE501  10C   208 -127  212 -130  216 -132  220 -135  224 -137

CE501  111620719 6000 79 -150              -88   50  -84   50  -80   50  -76   50
CE501  112   -72   50  -68   50  -64   49  -60   45  -56   43  -52   40  -48   38
CE501  113   -44   34  -40   32  -36   28  -32   25  -28   10  -24    5  -20    1
CE501  114   -16    0  -12   -3   -8   -5   -4   -8    0  -10    4  -13    8  -20
CE501  115    12  -16   16  -16   20  -23   24  -28   28  -32   32  -34   36  -37
CE501  116    40  -39   44  -40   48  -42   52  -44   56  -46   60  -49   64  -52
CE501  117    68  -56   72  -61   76  -69   80  -77   84  -83   88  -86   92  -86
CE501  118    96  -86  100  -86  104  -86  108  -86  112  -88  116  -89  120  -89
CE501  119   124  -89  128  -88  132  -82  136  -66  140  -46  144  -41  148  -43
CE501  11A   152  -46  156  -51  160  -58  164  -67  168  -76  172  -84  176  -91
CE501  11B   180  -98  184 -102  188 -105  192 -111  196 -117  200 -119  204 -123
CE501  11C   208 -125  212 -128  216 -130  220 -133  224 -136
```

CASE 701

```
CE701   11620709    0 79 -125             -128   75 -124   75 -120   75 -116   75
CE701   12  -112   75 -108   75 -104   75 -100   68  -96   60  -92   57  -88   53
CE701   13   -84   51  -80   50  -76   48  -72   46  -68   44  -64   41  -60   38
CE701   14   -56   36  -52   33  -48   30  -44   28  -40   24  -36   21  -32   19
CE701   15   -28   16  -24   14  -20   11  -16    9  -12    7   -8    5   -4    2
CE701   16     0    0    4   -2    8   -5   12   -8   16  -11   20  -14   24  -17
CE701   17    28  -20   32  -22   36  -25   40  -28   44  -31   48  -34   52  -36
CE701   18    56  -39   60  -42   64  -45   68  -48   72  -51   76  -53   80  -56
CE701   19    84  -59   88  -62   92  -65   96  -67  100  -69  104  -72  108  -75
CE701   1A   112  -78  116  -80  120  -83  124  -85  128  -88  132  -91  136  -94
CE701   1B   140  -97  144  -99  148 -102  152 -105  156 -107  160 -109  164 -112
CE701   1C   168 -114  172 -116  176 -118  180 -120  184 -121
```

(Continued)

(Sheet 14 of 27)

Table C3 (Continued)

```
CE701  21620709  100 79 -125            -128   75 -124   75 -120   75 -116   75
CE701  22 -112   75 -108   75 -104   75 -100   68  -96   61  -92   59  -88   56
CE701  23  -84   53  -80   51  -76   49  -72   47  -68   46  -64   43  -60   42
CE701  24  -56   41  -52   39  -48   39  -44   41  -40   47  -36   49  -32   45
CE701  25  -28   39  -24   33  -20   27  -16   20  -12   14   -8    7   -4    1
CE701  26    0   -3    4   -8    8  -12   12  -16   16  -20   20  -26   24  -30
CE701  27   28  -32   32  -36   36  -39   40  -41   44  -43   48  -44   52  -44
CE701  28   56  -45   60  -46   64  -46   68  -46   72  -47   76  -48   80  -49
CE701  29   84  -51   88  -54   92  -56   96  -59  100  -61  104  -65  108  -68
CE701  2A  112  -71  116  -70  120  -73  124  -80  128  -82  132  -87  136  -92
CE701  2B  140  -94  144  -98  148 -102  152 -105  156 -109  160 -115  164 -120
CE701  2C  168 -122  172 -124  176 -125  180 -120  184 -120

CE701  31620709  142 79 -125            -128   75 -124   75 -120   75 -116   75
CE701  32 -112   75 -108   75 -104   75 -100   69  -96   63  -92   60  -88   57
CE701  33  -84   54  -80   52  -76   50  -72   48  -68   47  -64   45  -60   44
CE701  34  -56   44  -52   45  -48   46  -44   50  -40   50  -36   46  -32   40
CE701  35  -28   34  -24   27  -20   21  -16   14  -12    7   -8    1   -4   -2
CE701  36    0   -8    4  -14    8  -19   12  -23   16  -26   20  -28   24  -30
CE701  37   28  -33   32  -35   36  -37   40  -39   44  -40   48  -41   52  -41
CE701  38   56  -42   60  -42   64  -43   68  -44   72  -45   76  -46   80  -47
CE701  39   84  -48   88  -50   92  -54   96  -57  100  -61  104  -66  108  -70
CE701  3A  112  -73  116  -77  120  -80  124  -83  128  -87  132  -90  136  -93
CE701  3B  140  -96  144  -99  148 -103  152 -108  156 -110  160 -111  164 -118
CE701  3C  168 -122  172 -122  176 -123  180 -121  184 -120

CE701  41620709  300 79 -125            -128   75 -124   75 -120   75 -116   75
CE701  42 -112   75 -108   75 -104   75 -100   70  -96   64  -92   62  -88   60
CE701  43  -84   58  -80   56  -76   55  -72   54  -68   54  -64   53  -60   51
CE701  44  -56   50  -52   47  -48   44  -44   40  -40   37  -36   33  -32   28
CE701  45  -28   24  -24   19  -20   13  -16    8  -12    3   -8   -1   -4   -6
CE701  46    0  -11    4  -15    8  -19   12  -21   16  -23   20  -26   24  -28
CE701  47   28  -30   32  -31   36  -31   40  -31   44  -31   48  -31   52  -31
CE701  48   56  -32   60  -35   64  -37   68  -38   72  -40   76  -42   80  -45
CE701  49   84  -49   88  -59   92  -66   96  -64  100  -65  104  -69  108  -70
CE701  4A  112  -74  116  -80  120  -84  124  -85  128  -90  132  -96  136  -97
CE701  4B  140 -102  144 -104  148 -105  152 -108  156 -115  160 -119  164 -118
CE701  4C  168 -120  172 -122  176 -123  180 -124  184 -124

CE701  51620709  425 79 -125            -128   75 -124   75 -120   75 -116   75
CE701  52 -112   75 -108   75 -104   75 -100   70  -96   64  -92   62  -88   60
CE701  53  -84   58  -80   57  -76   55  -72   54  -68   53  -64   52  -60   51
CE701  54  -56   49  -52   46  -48   42  -44   40  -40   37  -36   33  -32   29
CE701  55  -28   25  -24   22  -20   18  -16   14  -12    9   -8    5   -4    1
CE701  56    0   -2    4   -7    8  -11   12  -14   16  -17   20  -19   24  -21
CE701  57   28  -22   32  -24   36  -25   40  -28   44  -32   48  -35   52  -37
CE701  58   56  -39   60  -41   64  -43   68  -45   72  -49   76  -52   80  -55
CE701  59   84  -57   88  -59   92  -60   96  -63  100  -73  104  -76  108  -75
CE701  5A  112  -83  116  -88  120  -89  124  -94  128  -98  132  -99  136 -100
CE701  5B  140 -102  144 -105  148 -110  152 -115  156 -116  160 -118  164 -119
CE701  5C  168 -121  172 -123  176 -124  180 -124  184 -125
```

(Continued)

(Sheet 15 of 27)

```
CE701     61620709  500 79 -125           -128   75 -124   75 -120   75 -116   75
CE701     62 -112   75 -108   75 -104   75 -100   70  -96   65  -92   63  -88   61
CE701     63  -84   60  -80   58  -76   57  -72   56  -68   56  -64   56  -60   55
CE701     64  -56   54  -52   53  -48   52  -44   50  -40   46  -36   42  -32   37
CE701     65  -28   32  -24   27  -20   21  -16   14  -12    8   -8    3   -4   -1
CE701     66    0   -7    4  -12    8  -17   12  -21   16  -24   20  -27   24  -29
CE701     67   28  -30   32  -32   36  -34   40  -35   44  -35   48  -36   52  -37
CE701     68   56  -38   60  -40   64  -42   68  -43   72  -46   76  -48   80  -49
CE701     69   84  -53   88  -56   92  -60   96  -63  100  -65  104  -68  108  -71
CE701     6A  112  -75  116  -82  120  -90  124  -98  128 -102  132 -100  136 -103
CE701     6B  140 -110  144 -110  148 -110  152 -112  156 -118  160 -121  164 -120
CE701     6C  168 -122  172 -123  176 -124  180 -125  184 -123

CE701     71620709  707 79 -125           -128   75 -124   75 -120   75 -116   75
CE701     72 -112   75 -108   75 -104   75 -100   71  -96   67  -92   66  -88   65
CE701     73  -84   64  -80   64  -76   63  -72   62  -68   61  -64   59  -60   56
CE701     74  -56   53  -52   50  -48   47  -44   44  -40   41  -36   37  -32   33
CE701     75  -28   29  -24   23  -20   18  -16   13  -12    8   -8    3   -4   -1
CE701     76    0   -5    4  -10    8  -15   12  -20   16  -23   20  -25   24  -27
CE701     77   28  -29   32  -31   36  -33   40  -33   44  -34   48  -34   52  -35
CE701     78   56  -37   60  -39   64  -41   68  -43   72  -45   76  -47   80  -50
CE701     79   84  -54   88  -58   92  -61   96  -64  100  -66  104  -68  108  -71
CE701     7A  112  -74  116  -83  120  -96  124  -98  128  -99  132 -102  136 -109
CE701     7B  140 -111  144 -112  148 -118  152 -122  156 -123  160 -124  164 -124
CE701     7C  168 -123  172 -124  176 -123  180 -123  184 -121

CE701     81620709 1000 79 -125           -128   75 -124   75 -120   75 -116   75
CE701     82 -112   75 -108   75 -104   72 -100   69  -96   67  -92   67  -88   66
CE701     83  -84   64  -80   64  -76   64  -72   63  -68   62  -64   60  -60   58
CE701     84  -56   55  -52   52  -48   49  -44   46  -40   44  -36   40  -32   35
CE701     85  -28   30  -24   26  -20   21  -16   16  -12   10   -8    5   -4    0
CE701     86    0   -3    4   -8    8  -13   12  -17   16  -21   20  -23   24  -26
CE701     87   28  -28   32  -30   36  -32   40  -34   44  -35   48  -36   52  -37
CE701     88   56  -39   60  -41   64  -43   68  -45   72  -48   76  -50   80  -51
CE701     89   84  -54   88  -58   92  -61   96  -65  100  -67  104  -68  108  -70
CE701     8A  112  -73  116  -80  120  -91  124 -106  128 -118  132 -118  136 -118
CE701     8B  140 -118  144 -117  148 -116  152 -114  156 -114  160 -119  164 -121
CE701     8C  168 -121  172 -121  176 -121  180 -123  184 -123

CE701     91620709 1273 79 -125           -128   75 -124   75 -120   75 -116   75
CE701     92 -112   75 -108   75 -104   72 -100   70  -96   68  -92   66  -88   65
CE701     93  -84   65  -80   65  -76   65  -72   65  -68   64  -64   63  -60   61
CE701     94  -56   58  -52   55  -48   52  -44   49  -40   45  -36   41  -32   37
CE701     95  -28   32  -24   27  -20   21  -16   16  -12   11   -8    5   -4    1
CE701     96    0   -2    4   -7    8  -12   12  -17   16  -21   20  -23   24  -26
CE701     97   28  -29   32  -31   36  -33   40  -35   44  -36   48  -37   52  -39
CE701     98   56  -41   60  -43   64  -44   68  -46   72  -49   76  -51   80  -53
CE701     99   84  -56   88  -60   92  -63   96  -65  100  -67  104  -69  108  -72
CE701     9A  112  -75  116  -79  120  -88  124 -103  128 -115  132 -117  136 -116
CE701     9B  140 -117  144 -117  148 -116  152 -116  156 -117  160 -119  164 -120
CE701     9C  168 -121  172 -121  176 -121  180 -123  184 -124
```

(Continued)

Table C3 (Continued)

```
CE701  101620709 1500 79 -125            -128   75 -124   75 -120   75 -116   75
CE701  102 -112   75 -108   75 -104   72 -100   70  -96   68  -92   66  -88   65
CE701  103  -84   65  -80   65  -76   66  -72   66  -68   65  -64   64  -60   63
CE701  104  -56   60  -52   57  -48   54  -44   50  -40   46  -36   42  -32   38
CE701  105  -28   33  -24   28  -20   22  -16   17  -12   11   -8    6   -4    1
CE701  106    0   -3    4   -7    8  -11   12  -16   16  -21   20  -24   24  -26
CE701  107   28  -29   32  -31   36  -33   40  -35   44  -37   48  -39   52  -41
CE701  108   56  -43   60  -44   64  -46   68  -47   72  -50   76  -52   80  -54
CE701  109   84  -57   88  -61   92  -64   96  -66  100  -68  104  -70  108  -73
CE701  10A  112  -75  116  -79  120  -86  124  -98  128 -111  132 -116  136 -114
CE701  10B  140 -112  144 -114  148 -116  152 -117  156 -118  160 -120  164 -121
CE701  10C  168 -122  172 -122  176 -123  180 -124  184 -124

CE701  111620709 2000 79 -125            -128   75 -124   75 -120   75 -116   75
CE701  112 -112   75 -108   75 -104   72 -100   70  -96   68  -92   66  -88   66
CE701  113  -84   66  -80   68  -76   69  -72   69  -68   68  -64   67  -60   65
CE701  114  -56   61  -52   58  -48   55  -44   52  -40   48  -36   43  -32   39
CE701  115  -28   34  -24   29  -20   24  -16   19  -12   13   -8    7   -4    2
CE701  116    0   -2    4   -7    8  -12   12  -16   16  -21   20  -26   24  -28
CE701  117   28  -30   32  -32   36  -34   40  -36   44  -38   48  -40   52  -42
CE701  118   56  -45   60  -47   64  -49   68  -51   72  -52   76  -54   80  -55
CE701  119   84  -58   88  -62   92  -65   96  -67  100  -69  104  -71  108  -73
CE701  11A  112  -76  116  -80  120  -84  124  -93  128 -107  132 -119  136 -116
CE701  11B  140 -113  144 -116  148 -119  152 -121  156 -121  160 -121  164 -120
CE701  11C  168 -121  172 -123  176 -125  180 -124  184 -124

CE701  121620709 2758 79 -125            -128   75 -124   75 -120   75 -116   75
CE701  122 -112   75 -108   75 -104   72 -100   70  -96   68  -92   66  -88   66
CE701  123  -84   67  -80   67  -76   69  -72   72  -68   73  -64   73  -60   72
CE701  124  -56   70  -52   68  -48   64  -44   60  -40   56  -36   52  -32   48
CE701  125  -28   43  -24   37  -20   32  -16   27  -12   21   -8   15   -4    9
CE701  126    0    2    4   -2    8   -7   12  -12   16  -18   20  -24   24  -29
CE701  127   28  -34   32  -39   36  -43   40  -46   44  -49   48  -52   52  -54
CE701  128   56  -55   60  -57   64  -59   68  -60   72  -61   76  -64   80  -70
CE701  129   84  -77   88  -78   92  -84   96  -81  100  -71  104  -71  108  -74
CE701  12A  112  -77  116  -79  120  -82  124  -85  128  -90  132 -100  136 -113
CE701  12B  140 -118  144 -120  148 -122  152 -123  156 -123  160 -122  164 -121
CE701  12C  168 -123  172 -124  176 -124  180 -124  184 -125

CE701  131620709 3000 79 -125            -128   75 -124   75 -120   75 -116   75
CE701  132 -112   75 -108   75 -104   73 -100   70  -96   68  -92   66  -88   66
CE701  133  -84   67  -80   71  -76   74  -72   76  -68   77  -64   78  -60   77
CE701  134  -56   73  -52   69  -48   65  -44   61  -40   57  -36   53  -32   48
CE701  135  -28   42  -24   37  -20   31  -16   25  -12   20   -8   14   -4    7
CE701  136    0    3    4    2    8   -4   12  -13   16  -18   20  -24   24  -29
CE701  137   28  -35   32  -40   36  -44   40  -47   44  -50   48  -53   52  -55
CE701  138   56  -57   60  -59   64  -60   68  -61   72  -62   76  -65   80  -71
CE701  139   84  -78   88  -78   92  -74   96  -71  100  -71  104  -73  108  -75
CE701  13A  112  -78  116  -80  120  -82  124  -86  128  -91  132  -99  136 -109
CE701  13B  140 -117  144 -122  148 -124  152 -123  156 -121  160 -120  164 -122
CE701  13C  168 -123  172 -123  176 -124  180 -125  184 -125
```

(Continued)

(Sheet 17 of 27)

```
CE701  141620709 3323 79 -125             -128   75 -124   75 -120   75 -116   75
CE701  142 -112   75 -108   75 -104   73 -100   70  -96   68  -92   66  -88   67
CE701  143  -84   71  -80   75  -76   77  -72   78  -68   79  -64   80  -60   80
CE701  144  -56   79  -52   75  -48   71  -44   65  -40   58  -36   54  -32   48
CE701  145  -28   43  -24   37  -20   31  -16   25  -12   19   -8   12   -4    5
CE701  146    0    0    4   -5    8  -11   12  -16   16  -22   20  -27   24  -32
CE701  147   28  -38   32  -42   36  -46   40  -50   44  -53   48  -56   52  -58
CE701  148   56  -60   60  -61   64  -61   68  -62   72  -64   76  -68   80  -74
CE701  149   84  -77   88  -76   92  -73   96  -71  100  -72  104  -74  108  -76
CE701  14A  112  -79  116  -81  120  -84  124  -88  128  -93  132 -101  136 -109
CE701  14B  140 -117  144 -123  148 -124  152 -124  156 -122  160 -121  164 -123
CE701  14C  168 -124  172 -124  176 -124  180 -125  184 -125

CE701  151620709 4000 79 -125             -128   75 -124   75 -120   75 -116   75
CE701  152 -112   75 -108   75 -104   74 -100   74  -96   74  -92   73  -88   72
CE701  153  -84   74  -80   77  -76   80  -72   83  -68   85  -64   82  -60   78
CE701  154  -56   74  -52   69  -48   65  -44   60  -40   56  -36   52  -32   48
CE701  155  -28   42  -24   37  -20   32  -16   26  -12   20   -8   13   -4    6
CE701  156    0    1    4   -3    8   -9   12  -14   16  -20   20  -26   24  -32
CE701  157   28  -38   32  -43   36  -46   40  -49   44  -52   48  -55   52  -58
CE701  158   56  -60   60  -61   64  -62   68  -63   72  -65   76  -69   80  -75
CE701  159   84  -76   88  -74   92  -71   96  -71  100  -72  104  -75  108  -78
CE701  15A  112  -81  116  -83  120  -86  124  -90  128  -94  132 -101  136 -108
CE701  15B  140 -116  144 -123  148 -124  152 -123  156 -121  160 -121  164 -123
CE701  15C  168 -124  172 -124  176 -124  180 -125  184 -125
```

CASE 801

```
CE801    11620727    0 80 -150             -88   50  -84   50  -80   50  -76   50
CE801    12  -72   50  -68   50  -64   50  -60   50  -56   50  -52   50  -48   50
CE801    13  -44   50  -40   50  -36   49  -32   24  -28   21  -24   18  -20   14
CE801    14  -16   12  -12    9   -8    6   -4    3    0    0    4   -4    8   -8
CE801    15   12   -8   16  -11   20  -12   24  -16   28  -21   32  -21   36  -24
CE801    16   40  -26   44  -29   48  -31   52  -33   56  -36   60  -39   64  -42
CE801    17   68  -44   72  -47   76  -49   80  -52   84  -55   88  -58   92  -60
CE801    18   96  -63  100  -66  104  -68  108  -71  112  -74  116  -76  120  -79
CE801    19  124  -83  128  -86  132  -90  136  -94  140  -96  144  -98  148 -100
CE801    1A  152 -101  156 -103  160 -105  164 -106  168 -108  172 -110  176 -112
CE801    1B  180 -114  184 -115  188 -118  192 -120  196 -122  200 -125  204 -128
CE801    1C  208 -131  212 -134  216 -136  220 -140  224 -141  228 -141

CE801    21620727  100 80 -150             -88   50  -84   50  -80   50  -76   50
CE801    22  -72   50  -68   50  -64   50  -60   50  -56   50  -52   50  -48   50
CE801    23  -44   50  -40   50  -36   49  -32   25  -28   21  -24   18  -20   15
CE801    24  -16   12  -12   10   -8    8   -4    6    0    2    4   -2    8   -5
CE801    25   12   -7   16  -10   20  -14   24  -15   28  -18   32  -18   36  -26
CE801    26   40  -32   44  -21   48  -17   52  -26   56  -30   60  -36   64  -41
CE801    27   68  -45   72  -46   76  -48   80  -51   84  -53   88  -56   92  -60
CE801    28   96  -63  100  -66  104  -66  108  -69  112  -73  116  -76  120  -79
CE801    29  124  -82  128  -85  132  -89  136  -92  140  -95  144  -97  148  -97
CE801    2A  152 -101  156 -102  160 -104  164 -104  168 -107  172 -109  176 -111
CE801    2B  180 -113  184 -115  188 -117  192 -119  196 -122  200 -124  204 -127
CE801    2C  208 -130  212 -134  216 -137  220 -140  224 -141  228 -141
```

(Continued)

(Sheet 18 of 27)

Table C3 (Continued)

CE801	31620727		300	80	-150			-88	50	-84	50	-80	50	-76	50
CE801	32	-72	50	-68	50	-64	50	-60	50	-56	50	-52	50	-48	50
CE801	33	-44	50	-40	50	-36	49	-32	25	-28	20	-24	15	-20	13
CE801	34	-16	10	-12	6	-8	3	-4	0	0	-3	4	-6	8	-9
CE801	35	12	-10	16	-13	20	-17	24	-20	28	-22	32	-20	36	-24
CE801	36	40	-25	44	-30	48	-18	52	-19	56	-25	60	-34	64	-40
CE801	37	68	-44	72	-47	76	-50	80	-52	84	-54	88	-56	92	-59
CE801	38	96	-62	100	-65	104	-67	108	-69	112	-72	116	-76	120	-79
CE801	39	124	-82	128	-85	132	-89	136	-92	140	-94	144	-97	148	-99
CE801	3A	152	-101	156	-102	160	-103	164	-105	168	-107	172	-109	176	-111
CE801	3B	180	-113	184	-115	188	-117	192	-118	196	-121	200	-123	204	-127
CE801	3C	208	-130	212	-134	216	-137	220	-140	224	-141	228	-141		

CE801	41620727		500	80	-150			-88	50	-84	50	-80	50	-76	50
CE801	42	-72	50	-68	50	-64	50	-60	50	-56	50	-52	50	-48	50
CE801	43	-44	50	-40	50	-36	49	-32	25	-28	20	-24	15	-20	15
CE801	44	-16	13	-12	9	-8	5	-4	1	0	-1	4	-4	8	-6
CE801	45	12	-7	16	-9	20	-10	24	-12	28	-15	32	-17	36	-22
CE801	46	40	-30	44	-22	48	-18	52	-22	56	-29	60	-37	64	-42
CE801	47	68	-45	72	-48	76	-51	80	-52	84	-54	88	-56	92	-59
CE801	48	96	-62	100	-65	104	-68	108	-69	112	-72	116	-75	120	-78
CE801	49	124	-82	128	-85	132	-89	136	-92	140	-93	144	-96	148	-98
CE801	4A	152	-100	156	-102	160	-103	164	-106	168	-107	172	-110	176	-110
CE801	4B	180	-113	184	-115	188	-118	192	-119	196	-120	200	-123	204	-127
CE801	4C	208	-130	212	-134	216	-137	220	-139	224	-141	228	-141		

CE801	51620727		1000	80	-150			-88	50	-84	50	-80	50	-76	50
CE801	52	-72	50	-68	50	-64	50	-60	50	-56	50	-52	50	-48	50
CE801	53	-44	50	-40	50	-36	49	-32	25	-28	20	-24	15	-20	15
CE801	54	-16	13	-12	8	-8	4	-4	0	0	0	4	-2	8	-2
CE801	55	12	-4	16	-6	20	-9	24	-11	28	-15	32	-18	36	-23
CE801	56	40	-29	44	-25	48	-19	52	-24	56	-30	60	-38	64	-42
CE801	57	68	-46	72	-49	76	-51	80	-54	84	-55	88	-58	92	-61
CE801	58	96	-63	100	-65	104	-68	108	-69	112	-72	116	-75	120	-78
CE801	59	124	-81	128	-84	132	-87	136	-88	140	-93	144	-95	148	-97
CE801	5A	152	-100	156	-102	160	-105	164	-105	168	-106	172	-108	176	-110
CE801	5B	180	-113	184	-115	188	-117	192	-119	196	-121	200	-123	204	-127
CE801	5C	208	-130	212	-134	216	-137	220	-139	224	-141	228	-141		

CE801	61620727		1500	80	-150			-88	50	-84	50	-80	50	-76	50
CE801	62	-72	50	-68	50	-64	50	-60	50	-56	50	-52	50	-48	50
CE801	63	-44	50	-40	50	-36	49	-32	25	-28	20	-24	15	-20	14
CE801	64	-16	12	-12	8	-8	5	-4	1	0	0	4	-1	8	-1
CE801	65	12	-3	16	-5	20	-9	24	-13	28	-15	32	-17	36	-24
CE801	66	40	-30	44	-22	48	-19	52	-25	56	-32	60	-39	64	-44
CE801	67	68	-48	72	-51	76	-52	80	-55	84	-57	88	-59	92	-62
CE801	68	96	-64	100	-66	104	-68	108	-70	112	-73	116	-75	120	-78
CE801	69	124	-82	128	-84	132	-86	136	-89	140	-92	144	-94	148	-97
CE801	6A	152	-100	156	-103	160	-104	164	-106	168	-107	172	-108	176	-111
CE801	6B	180	-113	184	-115	188	-118	192	-119	196	-121	200	-123	204	-126
CE801	6C	208	-130	212	-134	216	-137	220	-139	224	-141	228	-141		

(Continued)

(Sheet 19 of 27)

Table C3 (Continued)

CE801	71620727		2000	80	-150			-88	50	-84	50	-80	50	-76	50
CE801	72	-72	50	-68	50	-64	50	-60	50	-56	50	-52	50	-48	50
CE801	73	-44	50	-40	50	-36	49	-32	25	-28	20	-24	15	-20	15
CE801	74	-16	13	-12	9	-8	6	-4	2	0	0	4	0	8	0
CE801	75	12	-2	16	-5	20	-7	24	-11	28	-15	32	-16	36	-24
CE801	76	40	-29	44	-22	48	-19	52	-27	56	-34	60	-41	64	-46
CE801	77	68	-49	72	-53	76	-54	80	-56	84	-58	88	-60	92	-63
CE801	78	96	-65	100	-68	104	-68	108	-70	112	-72	116	-75	120	-78
CE801	79	124	-81	128	-84	132	-86	136	-89	140	-91	144	-94	148	-97
CE801	7A	152	-100	156	-102	160	-104	164	-105	168	-106	172	-108	176	-110
CE801	7B	180	-112	184	-115	188	-118	192	-119	196	-121	200	-123	204	-126
CE801	7C	208	-129	212	-133	216	-136	220	-139	224	-140	228	-141		
CE801	81620727		3000	80	-150			-88	50	-84	50	-80	50	-76	50
CE801	82	-72	50	-68	50	-64	50	-60	50	-56	50	-52	50	-48	50
CE801	83	-44	50	-40	50	-36	49	-32	25	-28	20	-24	15	-20	15
CE801	84	-16	13	-12	11	-8	8	-4	3	0	0	4	0	8	-2
CE801	85	12	-4	16	-7	20	-10	24	-13	28	-17	32	-21	36	-25
CE801	86	40	-27	44	-17	48	-21	52	-30	56	-35	60	-40	64	-44
CE801	87	68	-48	72	-51	76	-53	80	-55	84	-59	88	-62	92	-64
CE801	88	96	-66	100	-69	104	-69	108	-72	112	-74	116	-76	120	-79
CE801	89	124	-81	128	-82	132	-85	136	-87	140	-90	144	-93	148	-96
CE801	8A	152	-99	156	-101	160	-103	164	-105	168	-106	172	-108	176	-110
CE801	8B	180	-113	184	-115	188	-117	192	-119	196	-121	200	-123	204	-126
CE801	8C	208	-129	212	-133	216	-136	220	-139	224	-140	228	-141		
CE801	91620727		4000	80	-150			-88	50	-84	50	-80	50	-76	50
CE801	92	-72	50	-68	50	-64	50	-60	50	-56	50	-52	50	-48	50
CE801	93	-44	50	-40	50	-36	49	-32	25	-28	21	-24	18	-20	15
CE801	94	-16	13	-12	11	-8	8	-4	3	0	0	4	0	8	-1
CE801	95	12	-3	16	-6	20	-8	24	-11	28	-14	32	-17	36	-23
CE801	96	40	-31	44	-22	48	-20	52	-26	56	-35	60	-42	64	-47
CE801	97	68	-51	72	-54	76	-57	80	-58	84	-58	88	-61	92	-62
CE801	98	96	-64	100	-67	104	-69	108	-71	112	-72	116	-73	120	-76
CE801	99	124	-76	128	-81	132	-83	136	-84	140	-88	144	-91	148	-93
CE801	9A	152	-94	156	-99	160	-102	164	-104	168	-106	172	-108	176	-109
CE801	9B	180	-111	184	-114	188	-116	192	-119	196	-120	200	-121	204	-124
CE801	9C	208	-126	212	-130	216	-133	220	-136	224	-138	228	-140		
CE801	101620727		5000	80	-150			-88	50	-84	50	-80	50	-76	50
CE801	102	-72	50	-68	50	-64	50	-60	50	-56	50	-52	50	-48	50
CE801	103	-44	50	-40	50	-36	49	-32	25	-28	21	-24	18	-20	15
CE801	104	-16	13	-12	12	-8	8	-4	4	0	1	4	1	8	0
CE801	105	12	-2	16	-5	20	-8	24	-11	28	-15	32	-17	36	-26
CE801	106	40	-28	44	-19	48	-21	52	-31	56	-36	60	-39	64	-47
CE801	107	68	-51	72	-54	76	-57	80	-59	84	-61	88	-64	92	-67
CE801	108	96	-68	100	-70	104	-72	108	-72	112	-74	116	-77	120	-78
CE801	109	124	-80	128	-82	132	-84	136	-87	140	-90	144	-92	148	-96
CE801	10A	152	-98	156	-101	160	-103	164	-105	168	-107	172	-109	176	-110
CE801	10B	180	-113	184	-116	188	-118	192	-120	196	-121	200	-123	204	-126
CE801	10C	208	-129	212	-133	216	-136	220	-138	224	-139	228	-140		

(Continued)

(Sheet 20 of 27)

Table C3 (Continued)

CASE 901

```
CE901     11620803     0 78 -130                  -116    70  -112    70  -108    70  -104    70
CE901     12  -100    70   -96    70   -92    70   -88    70   -84    70   -80    70   -76    70
CE901     13   -72    70   -68    70   -64    51   -60    40   -56    38   -52    36   -48    34
CE901     14   -44    30   -40    28   -36    25   -32    23   -28    20   -24    18   -20    14
CE901     15   -16    11   -12     7    -8     5    -4     2     0     0     4    -2     8    -4
CE901     16    12    -8    16   -11    20   -14    24   -16    28   -19    32   -21    36   -24
CE901     17    40   -26    44   -29    48   -31    52   -34    56   -36    60   -39    64   -41
CE901     18    68   -45    72   -47    76   -50    80   -52    84   -54    88   -56    92   -60
CE901     19    96   -62   100   -65   104   -67   108   -71   112   -73   116   -76   120   -78
CE901     1A   124   -81   128   -83   132   -86   136   -88   140   -92   144   -94   148   -98
CE901     1B   152  -100   156  -103   160  -105   164  -109   168  -111   172  -115   176  -116
CE901     1C   180  -119   184  -121   188  -123   192  -126

CE901     21620803   100 78 -130                  -116    70  -112    70  -108    70  -104    70
CE901     22  -100    70   -96    70   -92    70   -88    70   -84    70   -80    70   -76    70
CE901     23   -72    70   -68    70   -64    51   -60    40   -56    38   -52    36   -48    34
CE901     24   -44    30   -40    28   -36    26   -32    26   -28    22   -24    19   -20    17
CE901     25   -16    15   -12     9    -8     5    -4     0     0    -6     4    -7     8    -9
CE901     26    12   -11    16   -12    20   -15    24   -18    28   -22    32   -25    36   -26
CE901     27    40   -25    44   -27    48   -25    52   -27    56   -34    60   -34    64   -37
CE901     28    68   -48    72   -59    76   -65    80   -68    84   -65    88   -57    92   -47
CE901     29    96   -40   100   -40   104   -44   108   -52   112   -62   116   -69   120   -77
CE901     2A   124   -82   128   -81   132   -81   136   -88   140   -93   144   -93   148   -97
CE901     2B   152  -103   156  -103   160  -105   164  -111   168  -114   172  -115   176  -120
CE901     2C   180  -119   184  -120   188  -123   192  -126

CE901     31620803   310 78 -130                  -116    70  -112    70  -108    70  -104    70
CE901     32  -100    70   -96    70   -92    70   -88    70   -84    70   -80    70   -76    70
CE901     33   -72    70   -68    70   -64    51   -60    40   -56    38   -52    36   -48    34
CE901     34   -44    31   -40    29   -36    27   -32    25   -28    21   -24    19   -20    16
CE901     35   -16    12   -12     6    -8     0    -4    -5     0    -7     4    -8     8   -13
CE901     36    12   -13    16   -12    20   -15    24   -19    28   -24    32   -28    36   -32
CE901     37    40   -33    44   -32    48   -31    52   -32    56   -33    60   -40    64   -46
CE901     38    68   -45    72   -41    76   -42    80   -50    84   -59    88   -66    92   -71
CE901     39    96   -67   100   -59   104   -50   108   -44   112   -43   116   -48   120   -53
CE901     3A   124   -62   128   -70   132   -78   136   -85   140   -90   144   -91   148   -94
CE901     3B   152  -101   156  -106   160  -105   164  -108   168  -115   172  -118   176  -123
CE901     3C   180  -125   184  -127   188  -126   192  -128

CE901     41620803   620 78 -130                  -116    70  -112    70  -108    70  -104    70
CE901     42  -100    70   -96    70   -92    70   -88    70   -84    70   -80    70   -76    70
CE901     43   -72    70   -68    70   -64    51   -60    40   -56    38   -52    36   -48    34
CE901     44   -44    31   -40    29   -36    27   -32    24   -28    20   -24    17   -20    13
CE901     45   -16    11   -12     5    -8     0    -4    -5     0    -9     4   -10     8   -14
CE901     46    12   -17    16   -17    20   -16    24   -18    28   -24    32   -30    36   -35
CE901     47    40   -39    44   -42    48   -44    52   -42    56   -38    60   -39    64   -43
CE901     48    68   -45    72   -43    76   -40    80   -39    84   -45    88   -55    92   -65
CE901     49    96   -69   100   -64   104   -55   108   -47   112   -43   116   -45   120   -49
CE901     4A   124   -55   128   -63   132   -78   136   -84   140   -84   144   -92   148  -103
CE901     4B   152  -104   156  -108   160  -110   164  -113   168  -119   172  -122   176  -123
CE901     4C   180  -126   184  -126   188  -128   192  -129
```

(Continued)

(Sheet 21 of 27)

Table C3 (Continued)

```
CE901   51620803  930 78 -130            -116   70 -112   70 -108   70 -104   70
CE901   52 -100   70  -96   70  -92   70  -88   70  -84   70  -80   70  -76   70
CE901   53  -72   70  -68   70  -64   51  -60   40  -56   38  -52   36  -48   34
CE901   54  -44   31  -40   29  -36   27  -32   23  -28   19  -24   15  -20   12
CE901   55  -16    9  -12    3   -8   -2   -4  -10    0  -12    4  -19    8  -18
CE901   56   12  -16   16  -15   20  -15   24  -20   28  -24   32  -30   36  -36
CE901   57   40  -39   44  -44   48  -45   52  -45   56  -44   60  -42   64  -41
CE901   58   68  -43   72  -43   76  -41   80  -37   84  -33   88  -44   92  -57
CE901   59   96  -65  100  -64  104  -55  108  -46  112  -42  116  -43  120  -47
CE901   5A  124  -53  128  -60  132  -70  136  -84  140  -90  144  -94  148 -100
CE901   5B  152 -105  156 -111  160 -113  164 -117  168 -120  172 -123  176 -124
CE901   5C  180 -123  184 -125  188 -127  192 -128

CE901   61620803 1240 78 -130            -116   70 -112   70 -108   70 -104   70
CE901   62 -100   70  -96   70  -92   70  -88   70  -84   70  -80   70  -76   70
CE901   63  -72   70  -68   70  -64   51  -60   40  -56   38  -52   36  -48   34
CE901   64  -44   31  -40   29  -36   27  -32   22  -28   17  -24   14  -20   10
CE901   65  -16    7  -12    2   -8   -3   -4   -7    0  -10    4  -12    8  -14
CE901   66   12  -13   16  -13   20  -14   24  -21   28  -26   32  -32   36  -37
CE901   67   40  -38   44  -41   48  -45   52  -48   56  -48   60  -46   64  -44
CE901   68   68  -44   72  -44   76  -42   80  -38   84  -36   88  -40   92  -51
CE901   69   96  -60  100  -62  104  -54  108  -46  112  -41  116  -42  120  -46
CE901   6A  124  -52  128  -58  132  -68  136  -82  140  -87  144  -95  148 -102
CE901   6B  152 -108  156 -112  160 -112  164 -114  168 -117  172 -121  176 -124
CE901   6C  180 -123  184 -124  188 -127  192 -128

CE901   71620803 1550 78 -130            -116   70 -112   70 -108   70 -104   70
CE901   72 -100   70  -96   70  -92   70  -88   70  -84   70  -80   70  -76   70
CE901   73  -72   70  -68   70  -64   51  -60   40  -56   38  -52   36  -48   34
CE901   74  -44   31  -40   29  -36   27  -32   21  -28   16  -24   14  -20   10
CE901   75  -16    6  -12    1   -8   -4   -4   -8    0   -9    4  -11    8  -11
CE901   76   12  -12   16  -13   20  -16   24  -21   28  -28   32  -34   36  -37
CE901   77   40  -41   44  -45   48  -47   52  -48   56  -49   60  -49   64  -48
CE901   78   68  -43   72  -44   76  -43   80  -40   84  -36   88  -36   92  -44
CE901   79   96  -55  100  -61  104  -57  108  -48  112  -42  116  -40  120  -43
CE901   7A  124  -49  128  -56  132  -64  136  -74  140  -89  144  -95  148 -101
CE901   7B  152 -108  156 -110  160 -114  164 -117  168 -117  172 -120  176 -123
CE901   7C  180 -124  184 -125  188 -125  192 -128

CE901   81620803 2380 78 -130            -116   70 -112   70 -108   70 -104   70
CE901   82 -100   70  -96   70  -92   70  -88   70  -84   70  -80   70  -76   70
CE901   83  -72   70  -68   70  -64   51  -60   40  -56   38  -52   36  -48   34
CE901   84  -44   31  -40   29  -36   25  -32   21  -28   17  -24   15  -20   12
CE901   85  -16    9  -12    4   -8   -1   -4   -6    0   -8    4  -10    8  -12
CE901   86   12  -15   16  -15   20  -18   24  -20   28  -28   32  -36   36  -42
CE901   87   40  -45   44  -48   48  -50   52  -50   56  -51   60  -51   64  -49
CE901   88   68  -44   72  -44   76  -44   80  -43   84  -39   88  -36   92  -42
CE901   89   96  -52  100  -58  104  -57  108  -48  112  -42  116  -40  120  -43
CE901   8A  124  -49  128  -55  132  -63  136  -78  140  -91  144  -96  148 -100
CE901   8B  152 -107  156 -111  160 -113  164 -115  168 -119  172 -121  176 -123
CE901   8C  180 -124  184 -125  188 -126  192 -128
```

(Continued)

(Sheet 22 of 27)

Table C3 (Continued)

```
CE901    91620803 3100 78 -130              -116   70 -112   70 -108   70 -104   70
CE901    92 -100   70  -96   70  -92   70  -88   70  -84   70  -80   70  -76   70
CE901    93  -72   70  -68   70  -64   51  -60   40  -56   38  -52   36  -48   34
CE901    94  -44   31  -40   29  -36   26  -32   24  -28   22  -24   20  -20   16
CE901    95  -16   13  -12    7   -8    0   -4   -5    0  -10    4  -13    8  -14
CE901    96   12  -15   16  -20   20  -26   24  -29   28  -32   32  -37   36  -41
CE901    97   40  -45   44  -51   48  -54   52  -54   56  -53   60  -52   64  -49
CE901    98   68  -47   72  -46   76  -47   80  -46   84  -43   88  -38   92  -41
CE901    99   96  -52  100  -60  104  -61  108  -54  112  -45  116  -40  120  -41
CE901    9A  124  -46  128  -52  132  -59  136  -74  140  -86  144  -93  148  -97
CE901    9B  152 -104  156 -109  160 -111  164 -110  168 -115  172 -118  176 -121
CE901    9C  180 -123  184 -124  188 -126  192 -127

CE901   101620803 3410 78 -130              -116   70 -112   70 -108   70 -104   70
CE901   102 -100   70  -96   70  -92   70  -88   70  -84   70  -80   70  -76   70
CE901   103  -72   70  -68   70  -64   51  -60   40  -56   38  -52   36  -48   34
CE901   104  -44   31  -40   29  -36   27  -32   25  -28   22  -24   20  -20   16
CE901   105  -16   13  -12    7   -8    1   -4   -5    0  -11    4  -12    8  -14
CE901   106   12  -15   16  -20   20  -27   24  -31   28  -34   32  -36   36  -40
CE901   107   40  -45   44  -49   48  -51   52  -51   56  -52   60  -52   64  -53
CE901   108   68  -51   72  -49   76  -47   80  -45   84  -41   88  -38   92  -42
CE901   109   96  -52  100  -60  104  -62  108  -55  112  -46  116  -41  120  -41
CE901   10A  124  -46  128  -52  132  -58  136  -71  140  -85  144  -91  148  -96
CE901   10B  152 -100  156 -106  160 -108  164 -112  168 -116  172 -121  176 -122
CE901   10C  180 -124  184 -124  188 -125  192 -127

CE901   111620803 3757 78 -130              -116   70 -112   70 -108   70 -104   70
CE901   112 -100   70  -96   70  -92   70  -88   70  -84   70  -80   70  -76   70
CE901   113  -72   70  -68   70  -64   51  -60   40  -56   38  -52   36  -48   34
CE901   114  -44   31  -40   29  -36   27  -32   27  -28   24  -24   22  -20   18
CE901   115  -16   15  -12    9   -8    2   -4   -4    0  -11    4  -15    8  -17
CE901   116   12  -17   16  -23   20  -29   24  -32   28  -36   32  -38   36  -42
CE901   117   40  -44   44  -47   48  -50   52  -54   56  -53   60  -52   64  -52
CE901   118   68  -51   72  -50   76  -47   80  -47   84  -44   88  -40   92  -43
CE901   119   96  -54  100  -63  104  -63  108  -56  112  -46  116  -41  120  -42
CE901   11A  124  -46  128  -52  132  -59  136  -72  140  -87  144  -95  148  -96
CE901   11B  152 -101  156 -102  160 -108  164 -113  168 -115  172 -118  176 -121
CE901   11C  180 -125  184 -125  188 -126  192 -128

CE901   121620803 4030 78 -130              -116   70 -112   70 -108   70 -104   70
CE901   122 -100   70  -96   70  -92   70  -88   70  -84   70  -80   70  -76   70
CE901   123  -72   70  -68   70  -64   51  -60   40  -56   38  -52   36  -48   34
CE901   124  -44   31  -40   29  -36   28  -32   28  -28   26  -24   24  -20   20
CE901   125  -16   17  -12   11   -8    4   -4   -2    0   -8    4  -14    8  -16
CE901   126   12  -23   16  -26   20  -29   24  -35   28  -37   32  -39   36  -42
CE901   127   40  -43   44  -46   48  -49   52  -52   56  -54   60  -54   64  -54
CE901   128   68  -53   72  -53   76  -50   80  -48   84  -43   88  -40   92  -44
CE901   129   96  -54  100  -63  104  -62  108  -52  112  -44  116  -41  120  -42
CE901   12A  124  -47  128  -53  132  -59  136  -73  140  -81  144  -88  148  -97
CE901   12B  152 -104  156 -106  160 -105  164 -109  168 -112  172 -116  176 -119
CE901   12C  180 -123  184 -124  188 -124  192 -127
```

(Continued)

(Sheet 23 of 27)

Table C3 (Continued)

```
CE901  131620803 4960 78 -130          -116   70 -112   70 -108   70 -104   70
CE901  132 -100   70  -96   70  -92   70  -88   70  -84   70  -80   70  -76   70
CE901  133  -72   70  -68   70  -64   51  -60   40  -56   38  -52   36  -48   34
CE901  134  -44   31  -40   29  -36   29  -32   32  -28   33  -24   29  -20   25
CE901  135  -16   21  -12   14   -8    6   -4   -1    0   -8    4  -15    8  -19
CE901  136   12  -23   16  -30   20  -35   24  -40   28  -42   32  -42   36  -44
CE901  137   40  -45   44  -46   48  -46   52  -49   56  -51   60  -51   64  -53
CE901  138   68  -54   72  -54   76  -53   80  -50   84  -44   88  -38   92  -41
CE901  139   96  -54  100  -63  104  -62  108  -54  112  -47  116  -43  120  -44
CE901  13A  124  -48  128  -53  132  -59  136  -70  140  -83  144  -94  148  -97
CE901  13B  152  -99  156 -102  160 -104  164 -104  168 -111  172 -117  176 -117
CE901  13C  180 -123  184 -125  188 -125  192 -128
```

CASE 911

```
CE911    11620809    0 65 -128           -62   42  -58   39  -54   36  -50   34
CE911    12  -46   32  -42   29  -38   26  -34   24  -30   22  -26   19  -22   16
CE911    13  -18   13  -14   10  -10    7   -6    4   -2    2    2   -2    6   -4
CE911    14   10   -7   14  -10   18  -12   22  -16   26  -19   30  -21   34  -24
CE911    15   38  -26   42  -29   46  -31   50  -33   54  -36   58  -39   62  -41
CE911    16   66  -44   70  -46   74  -49   78  -52   82  -54   86  -56   90  -58
CE911    17   94  -60   98  -63  102  -66  106  -68  110  -71  114  -74  118  -76
CE911    18  122  -80  126  -82  130  -84  134  -86  138  -90  142  -92  146  -96
CE911    19  150  -98  154 -101  158 -104  162 -108  166 -110  170 -113  174 -117
CE911    1A  178 -118  182 -120  186 -123  190 -126  194 -128

CE911    21620809  100 65 -128           -62   42  -58   40  -54   37  -50   34
CE911    22  -46   34  -42   35  -38   33  -34   30  -30   23  -26   15  -22   10
CE911    23  -18    6  -14    4  -10    2   -6    0   -2   -1    2   -3    6   -6
CE911    24   10   -9   14  -13   18  -17   22  -19   26  -17   30  -17   34  -22
CE911    25   38  -29   42  -32   46  -27   50  -27   54  -31   58  -43   62  -54
CE911    26   66  -63   70  -68   74  -68   78  -56   82  -47   86  -39   90  -33
CE911    27   94  -34   98  -38  102  -44  106  -54  110  -64  114  -68  118  -73
CE911    28  122  -74  126  -76  130  -81  134  -86  138  -86  142  -92  146  -99
CE911    29  150  -98  154 -104  158 -110  162 -118  166 -117  170 -116  174 -119
CE911    2A  178 -118  182 -122  186 -126  190 -128  194 -128

CE911    31620809  310 66 -127           -66   44  -62   43  -58   42  -54   40
CE911    32  -50   36  -46   33  -42   30  -38   27  -34   22  -30   16  -26   10
CE911    33  -22    6  -18    4  -14    2  -10   -1   -6   -2   -2   -3    2   -3
CE911    34    6   -7   10  -12   14  -16   18  -22   22  -25   26  -26   30  -25
CE911    35   34  -23   38  -24   42  -26   46  -28   50  -35   54  -35   58  -37
CE911    36   62  -37   66  -42   70  -51   74  -58   78  -61   82  -65   86  -64
CE911    37   90  -55   94  -42   98  -35  102  -31  106  -33  110  -39  114  -46
CE911    38  118  -54  122  -68  126  -73  130  -80  134  -90  138  -90  142  -92
CE911    39  146 -103  150 -102  154 -103  158 -114  162 -111  166 -113  170 -117
CE911    3A  174 -120  178 -125  182 -125  186 -125  190 -127  194 -127
```

(Continued)

(Sheet 24 of 27)

Table C3 (Continued)

```
CE911   41620809  620 66 -128             -66   45  -62   43  -58   42  -54   39
CE911   42  -50   35  -46   31  -42   26  -38   22  -34   18  -30   15  -26   12
CE911   43  -22    8  -18    4  -14    1  -10    2   -6   -1   -2   -5    2   -8
CE911   44    6  -10   10  -16   14  -18   18  -21   22  -24   26  -26   30  -27
CE911   45   34  -27   38  -29   42  -31   46  -30   50  -35   54  -34   58  -38
CE911   46   62  -44   66  -43   70  -40   74  -39   78  -38   82  -38   86  -45
CE911   47   90  -55   94  -64   98  -65  102  -56  106  -46  110  -41  114  -41
CE911   48  118  -46  122  -52  126  -59  130  -69  134  -84  138  -91  142  -90
CE911   49  146 -102  150 -102  154 -108  158 -110  162 -112  166 -116  170 -120
CE911   4A  174 -123  178 -125  182 -125  186 -126  190 -128  194 -128

CE911   51620809  930 66 -128             -66   44  -62   43  -58   42  -54   39
CE911   52  -50   34  -46   30  -42   26  -38   22  -34   18  -30   15  -26   12
CE911   53  -22   10  -18    7  -14    3  -10    0   -6   -2   -2   -5    2   -9
CE911   54    6  -15   10  -19   14  -21   18  -23   22  -24   26  -28   30  -29
CE911   55   34  -30   38  -32   42  -35   46  -36   50  -37   54  -35   58  -37
CE911   56   62  -40   66  -41   70  -41   74  -38   78  -38   82  -43   86  -49
CE911   57   90  -60   94  -60   98  -52  102  -47  106  -60  110  -68  114  -62
CE911   58  118  -52  122  -51  126  -53  130  -59  134  -65  138  -72  142  -82
CE911   59  146 -102  150 -106  154 -107  158 -114  162 -115  166 -115  170 -120
CE911   5A  174 -124  178 -123  182 -125  186 -127  190 -128  194 -128

CE911   61620809 1240 66 -128             -66   44  -62   43  -58   42  -54   39
CE911   62  -50   35  -46   31  -42   26  -38   22  -34   19  -30   18  -26   17
CE911   63  -22   15  -18   10  -14    3  -10   -4   -6  -10   -2  -14    2  -14
CE911   64    6  -17   10  -20   14  -20   18  -20   22  -20   26  -23   30  -28
CE911   65   34  -31   38  -33   42  -36   46  -41   50  -42   54  -42   58  -42
CE911   66   62  -42   66  -39   70  -39   74  -43   78  -44   82  -46   86  -49
CE911   67   90  -46   94  -60   98  -71  102  -68  106  -58  110  -45  114  -42
CE911   68  118  -44  122  -47  126  -52  130  -57  134  -62  138  -68  142  -76
CE911   69  146  -95  150 -104  154 -106  158 -108  162 -112  166 -116  170 -121
CE911   6A  174 -122  178 -124  182 -125  186 -126  190 -128  194 -128

CE911   71620809 1550 66 -129             -66   45  -62   44  -58   42  -54   39
CE911   72  -50   35  -46   32  -42   29  -38   26  -34   21  -30   15  -26    6
CE911   73  -22    3  -18   -1  -14   -4  -10   -6   -6   -8   -2   -9    2  -11
CE911   74    6  -11   10  -12   14  -15   18  -20   22  -23   26  -29   30  -31
CE911   75   34  -35   38  -39   42  -41   46  -41   50  -40   54  -43   58  -39
CE911   76   62  -36   66  -39   70  -41   74  -46   78  -49   82  -60   86  -69
CE911   77   90  -64   94  -51   98  -38  102  -33  106  -33  110  -34  114  -39
CE911   78  118  -44  122  -49  126  -55  130  -62  134  -76  138  -87  142  -89
CE911   79  146  -94  150 -103  154 -103  158 -105  162 -114  166 -115  170 -119
CE911   7A  174 -123  178 -119  182 -124  186 -126  190 -127  194 -129
```

(Continued)

(Sheet 25 of 27)

Table C3 (Continued)

```
CE911   81620809 2480 65 -128               -62   44  -58   43  -54   38  -50   36
CE911   82   -46   30  -42   26  -38   22  -34   18  -30   15  -26   15  -22   21
CE911   83   -18   17  -14   10  -10    2   -6   -5   -2  -12    2  -16    6  -18
CE911   84    10  -22   14  -27   18  -29   22  -32   26  -34   30  -36   34  -38
CE911   85    38  -39   42  -41   46  -43   50  -44   54  -45   58  -47   62  -48
CE911   86    66  -46   70  -43   74  -40   78  -40   82  -46   86  -48   90  -48
CE911   87    94  -50   98  -63  102  -71  106  -67  110  -53  114  -43  118  -43
CE911   88   122  -44  126  -48  130  -52  134  -56  138  -60  142  -71  146  -82
CE911   89   150  -91  154 -104  158 -105  162 -105  166 -111  170 -115  174 -118
CE911   8A   178 -122  182 -124  186 -124  190 -126  194 -128

CE911   91620809 3100 66 -127               -66   46  -62   44  -58   42  -54   40
CE911   92   -50   38  -46   33  -42   28  -38   25  -34   20  -30   16  -26   11
CE911   93   -22    4  -18    0  -14   -4  -10   -5   -6   -5   -2   -7    2  -10
CE911   94     6  -14   10  -18   14  -23   18  -28   22  -32   26  -37   30  -42
CE911   95    34  -42   38  -44   42  -45   46  -46   50  -47   54  -45   58  -44
CE911   96    62  -41   66  -44   70  -43   74  -39   78  -42   82  -42   86  -43
CE911   97    90  -40   94  -40   98  -53  102  -61  106  -58  110  -48  114  -41
CE911   98   118  -41  122  -44  126  -51  130  -56  134  -63  138  -78  142  -86
CE911   99   146  -95  150  -96  154 -103  158 -103  162 -110  166 -116  170 -118
CE911   9A   174 -118  178 -122  182 -125  186 -124  190 -126  194 -127

CE911  101620809 3410 65 -129               -62   45  -58   42  -54   40  -50   37
CE911  102   -46   34  -42   29  -38   25  -34   20  -30   16  -26   13  -22   11
CE911  103   -18   10  -14    8  -10    6   -6    1   -2   -7    2  -14    6  -21
CE911  104    10  -27   14  -32   18  -36   22  -38   26  -40   30  -42   34  -43
CE911  105    38  -44   42  -45   46  -46   50  -48   54  -47   58  -48   62  -48
CE911  106    66  -43   70  -42   74  -44   78  -41   82  -41   86  -40   90  -41
CE911  107    94  -46   98  -53  102  -56  106  -55  110  -50  114  -57  118  -68
CE911  108   122  -71  126  -63  130  -55  134  -54  138  -58  142  -64  146  -69
CE911  109   150  -76  154  -92  158 -106  162 -106  166 -112  170 -117  174 -118
CE911  10A   178 -120  182 -124  186 -125  190 -126  194 -129

CE911  111620809 3720 66 -126               -66   46  -62   44  -58   42  -54   40
CE911  112   -50   38  -46   34  -42   29  -38   25  -34   21  -30   19  -26   22
CE911  113   -22   21  -18   18  -14    9  -10    0   -6   -7   -2  -15    2  -18
CE911  114     6  -21   10  -24   14  -33   18  -38   22  -39   26  -40   30  -42
CE911  115    34  -44   38  -42   42  -44   46  -46   50  -47   54  -50   58  -51
CE911  116    62  -52   66  -54   70  -53   74  -48   78  -42   82  -44   86  -46
CE911  117    90  -47   94  -49   98  -50  102  -64  106  -70  110  -66  114  -52
CE911  118   118  -43  122  -43  126  -44  130  -48  134  -51  138  -56  142  -62
CE911  119   146  -74  150  -86  154  -96  158 -100  162 -104  166 -109  170 -112
CE911  11A   174 -118  178 -121  182 -124  186 -125  190 -126  194 -126
```

(Continued)

(Sheet 26 of 27)

Table C3 (Concluded)

```
CE911  121620809 4030 66 -127             -66   46  -62   45  -58   43  -54   43
CE911  122  -50   43  -46   42  -42   38  -38   34  -34   26  -30   19  -26   12
CE911  123  -22    4  -18   -3  -14   -4  -10   -6   -6  -12   -2  -11    2   -7
CE911  124    6  -14   10  -22   14  -27   18  -31   22  -34   26  -38   30  -41
CE911  125   34  -43   38  -44   42  -46   46  -49   50  -49   54  -49   58  -50
CE911  126   62  -48   66  -46   70  -44   74  -45   78  -47   82  -48   86  -54
CE911  127   90  -62   94  -68   98  -62  102  -50  106  -39  110  -34  114  -34
CE911  128  118  -35  122  -39  126  -44  130  -50  134  -58  138  -72  142  -88
CE911  129  146  -83  150  -89  154  -94  158 -103  162 -103  166 -103  170 -112
CE911  12A  174 -119  178 -118  182 -127  186 -122  190 -124  194 -126
```

(Sheet 27 of 27)

APPENDIX D: NOTATION

g	Acceleration of gravity
h	Depth
h_c	Depth at bar crest
H_o	Deepwater wave height
L_o	Deepwater wavelength
q	Cross-shore sand transport rate
t	Time
T	Wave period
w	Sand fall velocity
x	Horizontal coordinate or distance
x_o	Location of no profile change
Z_b	Maximum berm height
Z_B	Maximum bar height
$(X_{CM})_b$	Location of berm center of mass
$(X_{CM})_B$	Location of bar center of mass
1	Subscript denoting condition at time 1
2	Subscript denoting condition at time 2
π	Numerical constant (3.14159...)